



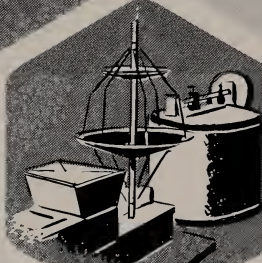
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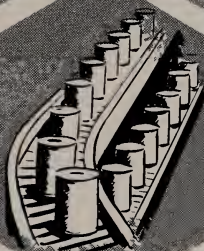
bee



to hive



to processing



to package

HONEY MARKETING



to market

FREDERICK W. BAUER



to consumer

ERRATUM

Page 25; paragraph 3 should read as follows:

Beekeeper Container Usage

Since only 38 per cent of beekeepers owning more than 25 colonies restrict their sales entirely to bulk forms (i.e., tanks, drums, or 60-pound cans), it follows that some portion of the output of the other 62 per cent is packed in containers suitable for retail trade. Fifty-four per cent of full-time beekeepers restrict their sales entirely to bulk forms.

Paragraph 6; delete last two lines of text.

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ACKNOWLEDGMENTS

THIS STUDY WAS PRODUCED, at the request of major organizations of the honey industry, under contract with the Agricultural Marketing Service, United States Department of Agriculture, under the provisions of the Research and Marketing Act of 1946. Acknowledgment is made to C. B. Gilliland, head of the Special Crops Section, Marketing Economics Research Division, AMS; and to Donald Jackson, agricultural economist, AMS, Berkeley, California, for their contribution in initiating the study and supervising the contract.

Acknowledgment is made to the beekeepers, packing organizations, honey industry associations, and state and other federal government officials, for their contribution to this study.

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HONEY MARKETING

Frederick W. Bauer

THIS STUDY, based on a sample of 2,000 beekeepers and packers, provides an analytical description of current marketing organization and practices of the United States honey industry and offers suggestions for changed practices and further studies.

From conferences held by Agricultural Marketing Service personnel and industry officials, and the author's subsequent interviews with producers and packers, this bulletin reports about the major marketing areas of concern to the industry:

- **Marketing Organization:** Description of industry organization and the marketing functions performed at various levels within the organization.
- **Marketing Activities:** Identification of seasonal patterns; volume handled by various channels of distribution; evaluation of sales promotion efforts; importance of exports and imports; growth of pollination as a major source of industry income.
- **Processing and Container Practices:** Relationship to marketing effectiveness.
- **Federal Programs:** Kinds of aid and the extent to which members of the industry avail themselves of assistance.

METHOD AND PROCEDURE

DATA IN THIS STUDY were obtained through extensive correspondence, field interviews, secondary sources, and questionnaires submitted to packers, beekeepers, and state apiary officials.

SAMPLING METHOD

Packer Information

Questionnaires were mailed to all of the 180 packers found in food trade directories and other lists maintained by the U. S. Department of Agriculture. Ap-

proximately 28 per cent of these firms replied with usable data.

Beekeeper Information

Questionnaires were also mailed to approximately 4,400 names provided by apiary officials of 14 states and the American Beekeeping Federation. Usable returns numbered 1,418. The states selected for study were those considered to be most representative of the several honey districts. The practical control procedure used was to submit the same questions

to the American Beekeeping Federation members of the remaining states.

Preliminary evaluation of samples submitted by several state apiary inspectors led to the inclusion of the section on colony ownership.

Analysis of beekeeper practices was based on the following number of returns:

Full-time beekeepers (operating more than 400 colonies)	393
Part-time beekeepers (25 to 399 colonies)	665
Hobbyists (less than 25 colonies) .	360

Thus, approximately 32 per cent of all full-time producers, 6 per cent of all part-time beekeepers, and .2 per cent of the hobbyists are represented in the sample. In view of the small number of hobbyist returns represented in the study, the estimates of total honey production by this group is based on the residual after the calculated output of the other classes has been deducted from the total honey production announced by the Crop Reporting Service.

Representation of hobbyists was minimized in order to devote the major resources of the study to the appraisal and

analysis of those classes of beekeepers responsible for the bulk of honey production.

Geographical distribution of the sample plan, and of the actual returns, is given here:

DISTRICT	SAMPLE PLAN % OF TOTAL MAILING	ACTUAL RETURNS % OF TOTAL
Pacific Northwest	3	4
California-Arizona	15	15
Intermountain	12	14
Plains	12	13
Texas	4	7
White Clover Belt	34	39
Southern	20	8
	100	100

The representation of the Southern District is less complete, even though a second mailing was designed to obtain more returns from that area.

Apiary Inspector Information

Inquiries were addressed to state apiary inspectors and extension apiarists in all states. The data received in reply contributed helpful information to the sections on industry trends, beekeeper population, and colony ownership.

CONCLUSIONS

MARKETING PROBLEMS in the honey industry arise from so wide and diverse a range of causes, that it is difficult for the industry to determine which step to take first toward solution. Although the occasional surpluses which occur would seem to present the most critical of marketing situations, actually other marketing problems are of greater long-range significance.

DISPERSION AND DIVERSITY OF INTEREST

The approximately 200,000 producers

are so widely dispersed that it is difficult for any agency or association to reach them with information, or for individual beekeepers to exchange ideas. Also, there is a diversity of interest among producers, depending on the size and type of their operations and geographic location, which constitutes a serious obstacle to the building of well-organized industry associations and activities. As a result, a marked lack of effectiveness is evident in those numerous areas of marketing and sales promotion which involve coordinated effort on a regional or national basis.

USE OF MARKETING INFORMATION AND STANDARDS

Current marketing information is being used only to a limited degree, and this, coupled with the producers' inability to gain access to additional facts, hampers them in bargaining with middlemen, and in turn makes planning difficult at the packer-dealer level. Effective use of marketing data requires the kind of informed, professional analysis which it is impractical for most producers to try to provide for themselves. Both industry and government could materially assist beekeepers by undertaking this function and establishing efficient ways to disseminate information.

Lack of knowledge about, or indifference to standards of sampling, testing, and processing, reduces producers' marketing effectiveness and leads to inadvertent destruction of quality. But the failure to apply established processing standards may largely be a reflection of the general unawareness among producers of the integrated nature of modern production and marketing, and of the necessity for considering the ultimate acceptability of the product during the course of production.

A concise handbook outlining the techniques, standards, and costs involved would increase the accessibility of information, but only the recognition by beekeepers that their returns are adversely affected by ignorance of the facts, will result in better use of standards.

Organized efforts on the part of producer associations and packers to gather and spread honey facts, findings, and practices, could do much to achieve improved processing practices.

MARKETING ACTIVITIES

The suggestions made in this study are based on widely accepted techniques in modern marketing practice which have proved to be of significant help

elsewhere in the food industry. If the honey industry is to improve its marketing effectiveness, considerably greater attention than is currently being given, should be devoted to detailed analyses of:

- Seasonal patterns of harvest and sales.
- Channels of distribution, distribution functions, and margins.
- Consumer preferences, buying habits, and motivations.
- Methods of sales promotion.

Imaginative programs for selling more honey or improving margins to any substantial degree require much more extensive marketing research than now exists in the industry, including a critical evaluation of existing sales promotion methods. While the interests of producers and packers may naturally lead in different directions in many phases of marketing research effort, the expansion of promotion programs for their mutual benefit would be most effective if conducted on some joint basis.

Although the development of pollination services clearly offers opportunity for expansion within the industry, beekeepers have done little, except in limited areas, to establish the marketing of pollination services on a commercialized basis.

FEDERAL PROGRAMS

The export and crop loan programs of the U. S. Department of Agriculture have been particularly effective. The crop loan program has served as a price insurance program every year since its inception, and has been a means of insulating the market in years of surplus.

Further federal assistance, if contemplated in the marketing field, would provide the greatest long-range benefits by supplying estimates of crops from major floral sources, processing and marketing cost studies, demand analyses, and analytical market situation reports.

I. MARKETING ORGANIZATION

GENERAL

THE HONEY INDUSTRY is defined in this study as including beekeepers, processor-packers, dealers (who purchase for their own account but do not process), and exporters.

In this study, any owner of at least one colony of bees was considered a beekeeper. The producer level of the industry is composed of approximately 200,000 beekeepers who range from the hobbyist with a few colonies of bees, to commercial operators with thousands of colonies.¹ Commercial beekeepers² have been classified here according to their major activity:

- Maximum production of honey.
- Rental of bee colonies for crop pollination.
- Production of package queens and bees for sale to other beekeepers.

Concern has been expressed³ about a possible high rate of exit from the industry, but state apiary officials generally do not report any substantial evidence of this. Movement both into and out of the industry is noted mainly among those who own a few colonies. Actually, there is a trend in 40 states toward larger

colony holdings by commercial beekeepers, which parallels the increasing scale of operations in other areas of agricultural production.⁴

PRODUCTION

The peak year in colony strength was 1947 when, according to Crop Reporting Service estimates, there were 5.9 million colonies. In the succeeding decade, there was a gradual downward trend to 5.3 million in 1955 and 1956, a 10 per cent decline. In 1957 the Crop Reporting Service estimated that colony population increased over the previous year by 100,000 colonies, with a further slight increase occurring in 1958.

The peak year for honey production was 1952, when 272 million pounds were produced. Although the average price per pound received by beekeepers doubled during World War II, honey output declined from its prewar levels until 1945. Thereafter, there was a rapid upward trend in production which culminated in the 1952 output.

Production varies widely between regions and from year to year depending on a complex combination of factors, such as rainfall, soil conditions, temperature, various other environmental circumstances, and management. Many of

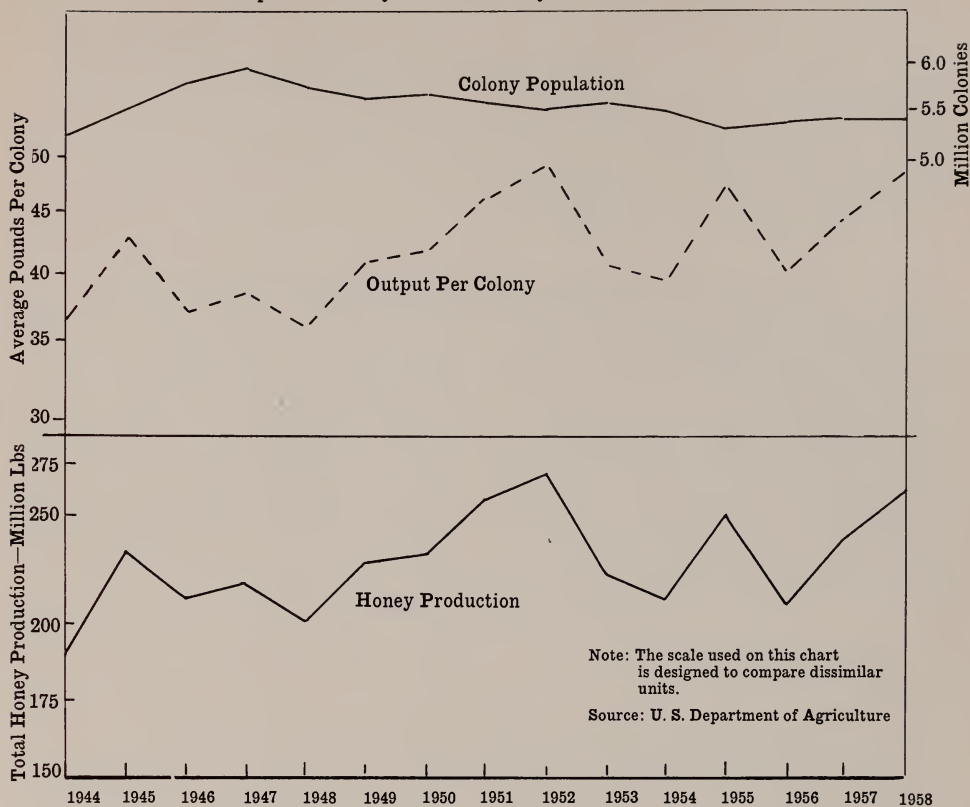
¹ 1958 estimates made in cooperation with state apiary inspectors and extension apiarists of 47 states.

² The colony ownership of a "commercial beekeeper" varies widely throughout the industry, ranging from a minimum of 30-40 colonies to the number of colonies required for a full-time job. Analysis of operating data in this study is based on colony ownership classes, rather than on "commercial" or "noncommercial" distinctions.

³ Hearings on H.R. 1768 and H.R. 2883, Committee on Agriculture, 81st Congress, April 27, 1949.

⁴ Correspondence with apiary inspectors and extension apiarists of 47 states.

FIGURE 1
COMPARISON OF COLONY POPULATION
Output Per Colony and Total Honey Production 1954-1958



the industry's marketing problem evidently result from wide year-to-year fluctuations in natural conditions, which affect the quantity and quality of honey production throughout the United States.

PRODUCTION AREAS

Although honey is produced in all areas of the country, the preponderance of production is concentrated in twelve states, which account for about 65 to 70 per cent of the United States total. California production fluctuates between 9 per cent and 12 per cent of national output, followed by Minnesota with approximately 7 per cent, Florida with 5 per cent to 8 per cent, and Iowa and Wisconsin

with 6 per cent each. These five states are the only ones which consistently produce in excess of 10 million pounds annually, and they have accounted for 40 per cent of national production since 1952. Other significant states are New York, Michigan, Ohio, Indiana, Illinois, Texas, Montana, Arizona, and Idaho. Idaho has become increasingly prominent in the last few years.

There are eight districts which may be so delineated on the basis of the floral sources of their honey production. Within each district, listed below, there is a relatively homogeneous range of beekeeping practice, floral sources, and regional consumer preferences.

DISTRICTS⁵

STATES INCLUDED

White Clover Belt ⁶	Del., Ill., Ind., Mich., Minn., New Eng., N. J., N. Y., Ohio, Pa., Wisc.
Southern District	Ala., Ark., Fla., Ga., Ky., La., Md., Miss., N. C., S. C., Tenn., Va., W. Va.
Plains District	Iowa, Kans., Nebr., N. D., Okla., Mo., S. D.
Texas District	Texas
Intermountain District	Colo., Ida., Mont., Nev., N. Mex., Utah, Wyo.
Pacific Northwest District . .	Oregon, Washington
California District	California
Arizona District	Arizona

Over the years, the far west has assumed greater importance in both colony population and production of honey. From the period 1928-1931, to the period 1954-1957, the annual average U. S. honey production increased 23 per cent. Production rose at less than the national rate in the White Clover Belt, the Southern, Plains, Texas, and Pacific Northwest districts. Average production in the Intermountain District increased 51 per

cent; in California 82 per cent; and in Arizona 93 per cent. In the area west of Texas and the Plains states, it rose from 42.9 million pounds, or 23 per cent of national production, to 67.7 million pounds, or 29 per cent of national production. This represents a 58 per cent increase in the total output of honey from this area in about 25 years. Table 1 depicts these changes.

The marked increase in western pro-

TABLE 1

HONEY PRODUCTION AND SHARE OF PRODUCTION,
U. S. HONEY DISTRICTS—ANNUAL AVERAGES 1928-1931* ; 1954-1957†

District	Honey production				25-year change in average honey production	
	1928-1931 average		1954-1957 average		Million lbs.	Per cent Iner. or decr.
	Million lbs.	Per cent U. S.	Million lbs.	Per cent U. S.		
White Clover Belt	68.2	36.3	77.5	33.5	+ 9.3	13.6
Southern	40.6	21.5	47.8	20.7	+ 7.2	17.7
Plains	28.1	14.9	28.7	12.4	+ .6	2.1
Texas	8.7	4.6	9.4	4.1	+ .7	.8
Intermountain	18.3	9.7	27.7	12.0	+ 9.4	51.4
Pacific Northwest	5.9	3.0	5.6	2.4	- .3	- 5.0
California	15.8	8.4	28.8	12.5	+13.0	82.3
Arizona	2.9	1.6	5.6	2.4	+ 2.7	93.1
	188.5	100.0	231.1	100.0	+42.6	22.6

* Voorhies, *op. cit.*, p. 12.

† *Honey, 1957 Annual Survey*, Crop Reporting Service, Agricultural Marketing Service, U.S.D.A., Washington D. C.

⁵ See Edwin C. Voorhies, Frank E. Todd, and J. K. Galbraith, *Economic Aspects of the Bee Industry*, University of California, College of Agriculture, Agricultural Experiment Station, Bulletin 555, Sept. 1933.

⁶ Some differences in yields, processing, and marketing practices exist between the eastern (Pennsylvania and east) and western (all states west of Pennsylvania) ends of this Belt. Significant differences are shown.

duction can be related to the following changes in agriculture in the last 25 years:

- There has been increased cultivation in the west of copious-nectar crops under irrigation, such as alfalfa.
- The trend toward mechanized agriculture, permitting much larger-scale operation, has increased the demand for commercial pollination services, and seems also to have encouraged more businesslike methods among beekeepers. Although the changes have not been confined to any one section of the United States, their impact has been greatest in the west.
- There have been declines or static conditions in the production of certain regional floral sources in the eastern districts.
- There have been improvements in roads and motor vehicles, as well as in the science of beekeeping, which have made migratory beekeeping over wider areas economically feasible.

SIZE OF OPERATIONS
VOLUME OF
PRODUCTION⁷

Some of the marketing problems of the honey industry result from the wide range of sizes and styles of operations within the industry. As noted elsewhere

in this study, the preponderance of beekeepers are small operators who keep bees as a hobby, or for small-scale pollination of orchard and field crops. It is estimated that over 90 per cent of the nation's beekeepers own less than 25 colonies, with an average ownership of about 10 colonies each. Table 2 depicts the estimated beekeeper population according to the ownership brackets used in this study.

The Hobbyist Beekeeper

Hobbyist beekeepers are recognized in the industry, but are not clearly defined. For the purposes of this study, mainly in consideration of the statistical problems involved, a hobbyist is defined as a beekeeper who owns less than 25 colonies. It is estimated that average production of hobbyists in 1957 was about 250 pounds of honey for a total national output of 47 million pounds.

The hobbyists represent an extremely wide variety of people, and are drawn from numerous occupations, including all of the professions, and many skilled trades. A vast majority of these producers who returned questionnaires expressed no concern about marketing problems.

⁷ Estimates and comments cited in this section are based on returns from beekeepers throughout the United States.

Also, state apiary inspectors were queried in early 1959 concerning the colony ownership of beekeeper population in 47 of the states.

TABLE 2
ESTIMATED POPULATION, COLONY OWNERSHIP, AND SHARE OF U.S.
PRODUCTION BY OWNERSHIP CLASSES OF BEEKEEPERS, 1957

Ownership Class	Number	Colony ownership		Percentage total U.S. honey production
		Total colonies	Average ownership per beekeeper	
Hobbyists (under 25 colonies).....	187,200	1,872,000	10	19
Part-time (25-399 colonies).....	11,600	1,682,000	145	37
Full-time (400 colonies and over).....	1,200	1,440,000	1,200	44

SOURCE: Questionnaire returns from beekeepers throughout the United States, checked against estimates of state apiarists.

Hobbyists are viewed with special interest in the industry. While beekeeping publications run columns designed to educate hobbyists on current practices,⁸ and membership dues in beekeeping associations are kept at a minimum for them,⁹ a number of packers and producers, during interviews, expressed the opinion that the wide range of production and pricing practices, and the varying quality of hobbyists' honey, is injurious to those who are dependent on honey for a livelihood. This, of course, is a complaint often heard where the costs of entry into an industry are low.

Actually, the effect of hobbyists on the industry is difficult to assess. A synthesis of the limited number of replies from this group indicates the following:

Production practices: The range of honey house practices and standards is no greater than it is in other groups. Testing for color or moisture is infrequent; straining or settling is usually undertaken to insure reasonable clarity; heating practices vary widely both as to time and temperatures.

Marketing activities: A frequent comment was, "Have had no trouble selling my honey." In general, members of this group indicate that no marketing problem exists for them, that they produce only for family or neighborhood sales, or that they do not consider themselves part of the honey industry. A carryover is rarely noted. In glass their prices are equal to, or higher than, retail store prices; in 60-pound cans they are higher than producer prices. Sales promotion efforts are confined mainly to personal selling at local stores and among neighbors and work associates. The suggestion hobbyists made most often for

⁸ See current issues of: *American Bee Journal*, Hamilton, Illinois, and *Gleanings In Bee Culture*, A. I. Root Co., Medina, Ohio.

⁹ Statements of officers, American Beekeeping Federation and California Beekeepers Association, 1958.

increasing sales and margins within the industry was for "more advertising."

If any conclusion can be drawn from the limited data about hobbyists, it is that they create few, if any, marketing problems. Their standards appear to be similar to those of many beekeepers who devote considerably more effort to honey production.

The Part-time Beekeeper

Part-time beekeepers are here arbitrarily defined as owners of 25 to 399 colonies. It should be stated at this point that a considerable number of beekeepers devote full time to less than 400 colonies, but many such operators are retired or elderly. Conversely, in certain sections of the country, beekeepers running substantially more than 400 colonies would be considered part-time operators. However, 399 colonies represent an approximate national upper limit for part-time operations.

Average colony ownership and production volume of part-time beekeepers are shown in Table 3.

It is estimated that about 11,600, or approximately 6 per cent of American beekeepers, own between 25 and 399 colonies. At an average production of 7,600 pounds per beekeeper, the output of this class is calculated to have totalled 88 million pounds, or 37 per cent of the national production in 1957.

The Full-time Beekeeper

For purposes of this study, the full-time beekeeper is defined as one owning 400 or more colonies. Although this lower limit has no meaningful application to the full-time commercial operators in many states, especially those in which large-scale migratory beekeeping is important, it was set in order to include all beekeepers who are devoting full working time to the job in all areas of the country.¹⁰ In some sections of the coun-

¹⁰ That is, full time of nonretired people.

TABLE 3
ESTIMATED AVERAGE COLONY OWNERSHIP AND HONEY
PRODUCTION: PART-TIME BEEKEEPERS—1957

District	Average ownership (colonies)	Average production (pounds)
Pacific Northwest.....	80	4,400
California.....	135	5,700
Arizona.....	220	11,000
Intermountain.....	180	8,600
Plains.....	117	9,300
Texas.....	127	6,600
White Clover.....	118	8,500
Southern.....	156	7,200
National average.....	145	7,600

SOURCE: Beekeeper questionnaire returns.

TABLE 4
ESTIMATED AVERAGE COLONY OWNERSHIP AND HONEY
PRODUCTION: FULL-TIME BEEKEEPERS—1957

District	Average ownership (colonies)	Average production (pounds)
Pacific Northwest.....	526	77,000
California.....	1,500	73,000
Arizona.....	1,842	104,000
Intermountain.....	1,520	124,000
Plains.....	921	100,000
Texas.....	1,272	115,000
White Clover { West*.....	1,000	85,000
{ East.....	850	66,000
Southern.....	1,000	72,000
National average.....	1,200	88,000

SOURCE: Beekeeper questionnaire returns.
* West of Pennsylvania.

try, beekeepers with 400 colonies frequently produce considerably more honey than do those with 600 or 700 in other sections. Hence, in evaluating the marketing impact of this small, but most important group, the definition used here produces no significant distortion.

It is estimated that this group of beekeepers numbers about 1,200 throughout the United States, a figure which represents approximately .6 of 1 per cent of the estimated total beekeeper population. The group contains most of the industry leaders and in 1957 produced an estimated 106 million pounds of honey, representing 44 per cent of the total U. S. output. Although average colony ownership and production of full-time beekeep-

ers vary widely by district, the national average colony ownership in 1957 was 1,200 colonies; average honey production was 88,000 pounds per beekeeper. This was more than 8 times as many colonies owned and nearly 12 times as much honey produced as the average of the part-time operators in that year.

Table 4 shows the average colony ownership and production of full-time beekeepers during 1957.

HONEY PACKERS, DEALERS, AND BROKERS

The packing and trading segment of the industry is composed of a relatively small group of middlemen, practically all

of whom buy either bulk, or more commonly, processed¹¹ honey, for their own account for resale. A precise breakdown of such buyers according to their specialized functions is difficult. A compilation of all probable middlemen was made by searching the major food industry directories and adding all others not listed therein from the files of the Agricultural Marketing Service and the Commodity Stabilization Service of the United States Department of Agriculture. The total thus obtained was approximately 180 firms, and questionnaires were subsequently sent to all of them.

About 10 per cent of the firms reported that they were no longer packing or handling honey. Many questionnaires were undeliverable. A number of firms answered by saying that they distribute only bottled honey packed by others, in connection with their general food wholesaling activities. Finally (as described in greater detail in the Export section), it was discovered that many import-export firms have not handled honey since the expiration of the export subsidy. It appears reasonable, therefore, to conclude that:

- Many firms market honey on an occasional basis as opportunity arises to turn a profit.
- Many firms which list themselves in trade directories as honey handlers cannot properly be considered as members of this industry. In a large number of cases they are general food brokers or wholesalers, for whom honey is a minor item in a wide line of products.
- Marketing units in the handler segment of the industry have decreased appreciably within the past five years. Evidence at hand indicates that exits far exceed entries into the business.

It is estimated that the number of firms

¹¹ That is, filtered, pasteurized and packaged.

active as packers, dealers, or brokers of honey in any significant volume, does not exceed 100.¹² Furthermore, it is estimated from data received that approximately 35 per cent of the 1957 total sales of American honey by packers, dealers, and brokers, was handled by the 24 members of the National Honey Packers and Dealers Association.

Specialized Functions

Functional classification of packers, dealers, and brokers is relatively simple:

A honey packer processes honey by various means, such as blending, filtration, and pasteurization; prepares honey for marketing to commercial or household users in a variety of containers suitable to the needs of the market; purchases largely for his own account (except in the case of cooperatives, which must accept members' honey and market it for members' benefit); and sells mostly processed honey to industrial users or wholesale middlemen.

A honey dealer is a middleman who buys honey for his own account and resells to industrial users and other middlemen. He ordinarily does no processing, but occasionally arranges for it if necessary to a sale. Over one-third of the packers who responded to the questionnaire, signified that they engage in dealer activities.

A honey broker is a middleman who represents a buyer or seller of honey lots for a brokerage fee. The brokerage function in the honey trade has declined almost to insignificance, largely as a result of rather stable, continuing relationships between packers and producers, and the tendency of brokers to undertake dealer activities. Although it is common to refer to those engaged in the import-export

¹² A significant number of firms listed in the packer group handled less than 100,000 pounds of honey in 1957, an amount not much in excess of the average output of a full-time beekeeper in that year.

trade as brokers, such firms actually operate largely as dealers—buying almost entirely for their own account for resale, as specific opportunities arise. It is not uncommon for units within the industry to engage in a variety of activities as opportunities to do so profitably arise.

A substantial number of packers, 25 per cent of the respondents, undertake truck distribution to wholesalers' warehouses and retail stores, particularly if they also carry food lines.¹³

Packers who are also beekeepers (referred to in the industry as producer-packers) are difficult to categorize; both their marketing and packing practices tend to be analogous to those of packing organizations. Thirty-eight such firms are listed by the American Beekeeping Federation as members of that organization, but a number of other known and substantial operators of this type are not listed by the association. A producer-packer can be characterized as:

- Producing a substantial share of his pack.
- Purchasing from other beekeepers.
- Engaging in packing and marketing functions.

Excluding several very large firms which are listed as producer-packers in the American Beekeeping Federation membership list, but which could more accurately be categorized as packers, one finds that the average 1957 honey sales of producer-packer firms was 135,000 pounds. Their purchases from other beekeepers averaged 36,000 pounds.

In considering marketing practices, a number of producer-packers were regarded as packers on the merit of the relative importance of their packing function. In many cases their operations were transitional between that of producer and that of packer. This dual type of operation is particularly effective near

consuming centers, and is often found in the White Clover Belt.

Concentration of Markets

The fact that there is a relatively small group of packing and marketing firms has not gone unnoticed by producers, many of whom blame the frequent low price levels on this concentration of buyers,¹⁴ a condition which they feel has also led packers and dealers often to act together in setting the price at which they will buy.

It is impractical in a study of this type to attempt to assess the validity of such charges, but the facts indicate that "going" offering prices for producer lots of honey can be arrived at without resort to collusion.

One of the characteristics of the industry which makes informed marketing at the producer level difficult is the rather isolated nature of beekeeper operations. Packers and dealers are in a much better position to know about general supply levels over a wide area than is the individual producer, or even an entire group of producers in a given area.

In some areas private packers try to stay "in line" cost-wise with Sioux Honey Association Cooperative. This means that private packers frequently work back from a competitive wholesale price level to a producer price level at which they hope to purchase honey and maintain a suitable profit. Thereafter bargaining with producers quickly narrows prices to a "going" level.

It must be assumed that where producers freely discuss prices, a market price based on packers' inventories and shipping costs will be quickly established.

In the case of the isolated Intermountain District, however, from which surplus honey must move eastward or to urban Pacific Coast sections, price levels are largely governed by the prices, less

¹³ Among other lines noted were peanut butter, mayonnaise, pickles, syrups.

¹⁴ Comments of beekeepers on questionnaires and during interviews.

freight, which obtain in the areas of destination.

Interviews within the industry revealed that the various state packer and dealer groups and the National Honey Packers and Dealers Association are not cohesive trade organizations out of which unified action could be expected on supply prices. The trading tactics of individual packers are sometimes less than ethical, quite aside from the economics of the market.

A common questionnaire observation by beekeepers was: "There ought to be more competition among packers for honey." However, although more energetic bidding for available honey supplies might result if there were an increase in the number of packers, inquiry reveals that in spite of the modest capital requirements connected with honey packing, at least four of the nation's largest food processors have avoided honey as a national branded item,¹⁵ because of the problems inherent in the grading, inspection, and blending of honey, its nonuniform supply, variable shelf life, low stock turnover, and the wide range of regional preferences.

As mentioned elsewhere, the entry of additional packers via the producer-packer route is a constant element to be reckoned with by honey-packing firms. As producer-packer firms grow, however, they necessarily become more oriented to packer interests and less to those of beekeepers.

Finally, it is apparent from evidence gathered in this study that current market and profit conditions in the industry not only fail to present a picture of widespread opportunity with which to attract new entrants, but have actually brought about a substantial exit of packer-dealer firms.

In order to improve his marketing po-

¹⁵ Based on correspondence with four processors of national brands. All had considered honey and one had actually sold bottled honey, but dropped it.

sition, a producer must be aware of supply conditions not only in his own area, but in other areas within economical shipping distances of packing centers.¹⁶ Successful marketing requires knowledge, ingenuity, and energy. A producer cannot concern himself solely with production until after harvest and expect to maximize his income. Marketing is a year-round job.

A route by which beekeepers may attempt, and sometimes have attempted, to improve their marketing operations, is through cooperative organization.

COOPERATIVE ORGANIZATIONS

There are six important cooperatives in the honey industry:

- Sioux Honey Association, Cooperative, Sioux City, Iowa.
- Finger Lakes Honey Producers Cooperative, Groton, New York.
- Ohio Honey Association, Columbus, Ohio.
- Florida Honey Cooperative, Umatilla, Florida.
- Imperial Valley Honey Marketing Association, San Bernardino, California.
- Valley Honey Cooperative, Carmichael, California.

The combined volume of honey handled by these six organizations in 1957 was about 35 million pounds, or 14 per cent of national production. Combined membership is approximately 800 producers.

All of these cooperatives are organized primarily as marketing associations, al-

¹⁶ Since producers and middlemen deal in various floral sources, not just honey, it would be of great benefit to the industry if a method of crop estimation could be developed for major floral sources. To be of maximum benefit, it would be necessary to release estimates promptly after the harvest of a number of important regional crops like tupelo, sage and fireweed.

though Sioux Honey Association and Finger Lakes Producers Cooperative also engage in the full range of processing with their own facilities. Sioux Honey Association, with its six plants located in the major producing areas of the country, is the largest processor and marketer of honey in the United States. The other cooperatives are essentially regional in character, as for example Finger Lakes Cooperative, which restricts its marketing activities largely to the New York metropolitan area.

Although records show that this type of organization has existed in the honey industry for over fifty years, only the six listed here are known to exist today, and several of these are of fairly recent origin.¹⁷

Cooperatives offer advantages¹⁸ to beekeepers which they cannot achieve as individuals, but the potential gains are dependent to a great extent on the following factors:

- Floral source of production and quality of output.
- Degree of control which management has over storage, segregation, and quality standards.
- Range of processing and marketing activities.
- Financial strength of members.
- Management skills of hired personnel.

In general, the producers' bargaining position is enhanced if the cooperative controls a sizable portion of a crop, but since a small percentage of producers are members of the cooperatives, and only 14 per cent of the total production, widely dispersed throughout the country, is controlled by these organizations, the bargaining advantage to be gained through

¹⁷ Another cooperative was in the process of formation in California at the time this manuscript was being completed.

¹⁸ There is an extensive body of work on the theory and operations of cooperatives. The comments offered here apply only to factors of specific concern to honey producers.

belonging to a cooperative is of considerably less importance in this industry than in many others.¹⁹ Although cooperatives have sometimes successfully raised or maintained producer prices by bidding for supplies of particular floral sources in various localities throughout the country, their major contribution to this industry has been in the area of providing better marketing management for crops than beekeepers have been able to provide for themselves.

The following comments are based on observed problems of beekeeper cooperatives in connection with the five factors mentioned above.

Floral Sources and Quality

Because of the local nature of most honey cooperative operations, it is always most likely that their product mix will adhere closely to that of the region in which they are located. While this is an advantage in years when conditions yield a good crop of choice regional types, there are also years when the cooperatives find themselves with just an average product mix of the particular area in which members are concentrated. If, for instance, a small regional cooperative has mainly a large crop of light amber alfalfa honey which must be marketed, either as bakery or export honey, there is a strong probability that there is also a plentiful supply of the same type of honey in the hands of beekeepers outside the cooperative. There would then be no compelling reason for packers or exporters to deal with the cooperative, *unless* the organization could offer both the producer and potential buyers the benefits which accrue from good management.

The concentration of cooperative membership in a limited area, especially if members are not migratory operators, also frequently presents the problem of

¹⁹ In some areas, of course, cooperatives control a much higher proportion of the crop; in others, practically none.

limiting the types and grades of honey a cooperative can offer customers. The only solution to this problem lies in the organization's willingness to add to the range of its stock by purchasing honey from other areas.

Degree of Management Control Over the Product

Packer interview responses indicate that purchases from cooperatives which do not have central storage and grading are frequently unsatisfactory because the shipments received from members do not coincide with representations made by the manager as the basis of the sale. In some honey cooperatives managers have little or no control over sampling, testing, storage, or segregation of the crop, since the "pools" are simply the totals of reported floral sources and grades held by the individual members. In such cases the manager is essentially a sales agent, and marketing standards are therefore applied to crops which have actually been variously processed, because of the wide range of members' practices.

Thus, central sampling, testing, grading, and storage in various pools—all insurance of quality service—are vital marketing management functions which cooperatives can perform as inducement for packers, dealers, and industrial users to buy from them. It is difficult to envision how a manager can do an effective job without having such control over the members' output.

Range of Processing and Marketing Activities

Since a number of honey cooperatives do not process in any way, they add nothing to their product which differentiates it from that of the competing nonmember producers. While there may not be any necessary correlation between success and full processing and marketing, the most successful cooperatives do engage in the full range of processing, packing and merchandising. One advantage

in this is that honey does not then have to be sold to others as separate lots of various floral sources and grades, but can be blended into suitable varieties of pack depending on the demands of the end-use market. In order to be in a position to do this, however, a cooperative must be able to draw on a sufficiently wide range of floral sources to provide an adequate product mix.

Financial Resources

The financial strength of cooperative members is important to the organization's success, inasmuch as producers do not receive full payment for their crop at the time it is turned over to the cooperative.²⁰ It is therefore necessary for members to have sufficient working capital with which to continue in operation until the crop has been sold. One way in which a properly managed cooperative with a suitable central warehouse can improve this situation is through the use of commercial loans on warehouse receipts, which may be used to finance members' operations as the crop is sold. The cooperative is, of course, entitled to the same government crop loans and purchase agreements as are individuals. It is assumed that the organization's own reserves might ultimately be used for these purposes. Also, the Banks for Cooperatives are a source of loans for cooperatives in sound financial condition. It should be kept in mind that a sound working capital position is just as important to a cooperative as it is to any other business enterprise.

A cooperative member's financial resources are also a crucial consideration in relation to the period of time over which his crop may be held prior to sale. The manager of a purely local cooperative, having difficulty moving a heavy crop (especially if it is of low grade or limited floral source) may put most of the crop under CCC loan and then hold

²⁰ Usually not more than 50 per cent on delivery.

it up to the time limit prior to delivery to CCC, as he attempts to move it. Conversely, it may occasionally be desirable to carry over choice stocks into the next crop year, but again, the putting into effect of such a plan would depend on the members' ability to finance themselves until the eventual sale is made. In the former case, members are probably no better off than other beekeepers with like yields unless other benefits accrue through membership; in the latter case the cooperative might present advantages through continuing marketing management. Generally speaking, cooperatives in this industry try to avoid carrying over anything but choice specialty types on which crops are limited or infrequent.

Another obstacle to the building of financially strong honey cooperatives arises from the tendency of members to take a short-term view of the advantages of cooperation, and in years of scarce supply independently enhancing their individual incomes over what they would garner from pool averages, less expenses. It is clear that in order to be effective, cooperation must be sold to beekeepers on the basis of the long-term over-all advantages it can offer, in addition to full-time marketing management services.

Management Skills of Hired Personnel

Although management skill is an indispensable ingredient for success in any enterprise, cooperative management personnel must have pronounced leadership qualities. This is particularly true in cooperatives handicapped by lack of facilities, working capital, limited manager control of the crop, or minimum processing activities.

Although it is usually difficult for small honey cooperatives to hire full-time skilled managers at the salaries they can afford to pay, part-time beekeeping by the manager to supplement his income is likely to defeat the cooperatives' purposes in employing him. It is a widely

accepted fact in business management that when a manager's total income depends on several activities which yield various returns, he devotes more attention to those ventures over which he has the more direct personal control. And in the case of the part-time beekeeper-manager, it is likely that he would put less effort into his managerial duties than he does into his beekeeping.

In order for producers to reap the maximum benefits from cooperation, honey cooperatives will have to concern themselves more and more with activities which will put them on a sound competitive basis with private business organizations in the industry. This means among other things, that they will need: managers who understand the techniques of standardization, processing, cost control, and merchandising; access to legal and accounting skills; and information about the advantages of working with other types of cooperative organizations.²¹

The conclusions to be drawn from these observations are:

- Cooperatives can enhance bargaining power and marketing efficiency of beekeepers, although some honey cooperatives are not fully exploiting their opportunity to accomplish these ends.
- Honey cooperatives should seek to draw membership, or exploit nectar sources, from over an area wide enough to insure an extensive product mix both as to floral source and grade. The federation of several local cooperatives might achieve such an end.
- The crop should be delivered to the cooperative warehouse for testing, grading, and segregation into pools under the control of the management.

²¹ One advantage cooperatives gain in this respect is a full-time staff in the Farmers Cooperative Service, U.S.D.A., on whom they can call for advice.

- The entry of more local or regional cooperatives into processing, consumer packaging, and merchandising, would increase the opportunities for improving returns of producers already using the cooperative as a bargaining association for the sale of bulk, unprocessed honey.²² Since new members are reportedly not currently being accepted by the only nationwide cooperative which carries on such activities, producers can venture into more extensive cooperative marketing only by building their own processing plants, or buying out existing private packers.²³
- The cooperative should adopt standards and practices which would improve its ability to borrow working capital for its own and members' operating needs.
- Honey cooperatives should handle a sufficient volume to support a full-time manager who would be responsible for application of standards, processing, marketing, and other business management. It is likely that it will eventually be recognized that more formal training in business management, as well as experience in food marketing, should be considered in the hiring of honey cooperative managers.

²² This has been common among cooperatives in a number of crops since World War II. See *Farmer Cooperatives in the United States*, F.C.S. Bulletin 1, Farmer Cooperative Service, U.S.D.A., December 1955, p. 23.

²³ Another possible method of diversification would be for the cooperative to extract members' honey in order to free beekeepers to concentrate on production.

This discussion has avoided the implications of what might happen to competitive conditions within the industry if additional processing and marketing units were to become active. In general, all packers, including cooperatives, appear to view the demand for honey as inelastic, with competition aimed at a larger share of existing demand rather than the same or a slightly smaller share of a considerably increased demand. Sioux Honey Association's policy of not accepting new members until demand can be expanded for the additional volume (presumably at existing margins), is apparently a manifestation of this attitude. Thus, the entry of new packing organizations would undoubtedly produce short run effects of reducing margins of existing regional units and unsettling regional competitive relationships unless, for instance, a cooperative were to buy the facilities and good will of an existing packer. Over the long run, it is entirely possible that additional competitive pressure would produce greater total profit for efficient units through the creation of a new demand curve for the industry. A theoretical appraisal of the various facets involved does not fall within the purview of this study, but might present some interesting opportunities for investigation in connection with the organization of additional regional packing cooperatives.

II. PROCESSING AND CONTAINER PRACTICES

PROCESSING PRACTICES¹

Beekeepers

METHODS OF SAMPLING, and the care taken in preparing honey lots, are the processes by which producers largely establish their reputation. Honey house practices may affect the color, shelf-life, cleanliness, flavor, and general salability of honey. Of all the complaints voiced by packers, those involving lack of adequate care on the part of the producer are among the most frequent.

Processing practices which most affect marketing are:

- Settling, straining or filtering.
- Heating.
- Testing for color and moisture.
- Sample taking.

Settling, straining and filtering. The clarification of honey is so important that it should command the serious attention of the beekeeper. A product which contains a large number of insect parts, larvae, and other foreign materials, naturally casts serious doubt on the quality of the honey and the craftsmanship of the producer. Even though the number of producers who do not clarify is small, the total volume of honey involved may be considerable.

Part-time producers are more likely to avoid processing than full-time operators. In general, settling and straining tend to

be used in combination to a greater extent than either one separately. Filtering is less often used, except among full-time beekeepers of the eastern White Clover Belt. Table 5 shows the practices of the various honey districts, and indicates certain tendencies with regard to clarification.

A conservative estimate of the volume of honey not clarified by the producer in any way would be at least 10 per cent of the total. In cases where the beekeeper decides between settling and straining, the full-time operator tends to select the settling method, the part-time producer the straining method—possibly because settling equipment is the more expensive.

From the standpoint of marketing quality, it is suggested that beekeeper organizations strive to encourage all producers to perform at least a straining operation on honey during extraction.

Heating. As can be gathered from the amount of discussion and feeling which has been engendered by the question of overheated honey in the export trade, heating assumes great importance in the marketing of honey. The evidence gathered in this survey indicates that there is no other subject related to honey about which there is less agreement—either as to facts or practices—and this applies to all classes of producers.

Two elements are involved in the application of heat: time and temperature. Whereas laboratory tests demonstrate that flash heating to 160° F is not injurious to honey, honey held even at room temperature or slightly heated over an extended time, may darken, change in

¹ Data in this section were derived from questionnaires filled out and returned by beekeepers and packers.

TABLE 5
CLARIFICATION PRACTICES OF BEEKEEPERS
PERCENTAGE OF PRODUCERS ENGAGING IN VARIOUS TECHNIQUES

District	Part-time producers				Full-time producers			
	Do not process	Settle or strain only	Settle and strain	Filter	Do not process	Settle or strain only	Settle and strain	Filter
	%	%	%	%	%	%	%	%
Pacific Northwest.....	14	36 Strn.	50	..	7	8 Stl.	77	8
California.....	7	14 Strn.	77	2	3	36 Stl.	61	..
Arizona.....	14	57 Stl.	29	..	..	64 Stl.	27	9
Intermountain.....	6	18 Strn.	70	6	7	8 Stl.	77	8
Plains.....	5	35 Strn.	58	2	3	26 Stl.	69	3
Texas.....	10	57 Strn.	29	4	4	41 Stl.	45	10
White Clover {West.....	4	46 Strn.	48	2	7	7 Strn.	76	10
{East.....	2	38 Strn.	58	2	..	21 Strn.	50	28
Southern.....	10	45 Strn.	45	..	7	29 Strn.	57	7

SOURCE: Beekeeper questionnaire returns.

TABLE 6
HEATING OF HONEY*

District	As applied by part-time producers			As applied by full-time producers		
	Time range†	Temp. range	Average temp.‡	Time range†	Temp. range	Average temp.‡
	hr.-min.	deg. F.	deg. F.	hr.-min.	deg. F.	deg. F.
Pacific Northwest.....	4 ^h	120-168	140	3m-30m	105-160	130
California.....	30m- 8 ^h	110-160	130	||	100-160	115
Arizona.....	60m	.....	180§	24 ^h	.....	155§
Intermountain.....	30m-15 ^h	110-160	140	10m-12 ^h	85-160	130
Plains.....	15m-24 ^h	100-160	140	10m-24 ^h	80-165	140
Texas.....	30m-60m	80-160	150	3m- 6 ^h	110-160	140
White Clover {East.....	10m- 2 ^h	100-170	140	60m-24 ^h	110-160	140
{West.....	15m-30 ^h	110-175	150	30m-24 ^h	100-170	140
Southern.....	15m-21½ ^h	130-160	150	45m-60m	110-160	140

SOURCE: Beekeeper questionnaire returns.

* The presentation of time-temperature data should be based on the combined results of the individual times and their related temperatures. The figures shown in this table are intended merely to show the extent to which honey is heated.

† Flash heating not included in the time range, although flash temperature is in temperature range.

‡ Median value: half of observations are higher and half are lower.

§ Only one observation in each case.

|| Insufficient time data. High proportion evidently use flash-heating.

flavor, or both. Table 6 shows the ranges of time and temperature reported in the various honey districts by producers.

Although it would seem clear that the higher heats would best be applied for shorter times, study of individual reports shows that in fact high heat is frequently associated with long heating periods. Indications are that producers who are overheating and not properly cooling,

are unwittingly burning up their profits by increasing their processing costs and causing color and grade deterioration of their product.

Analysis of Table 6 will show that full-time beekeepers tend to use a lower average heat than do other producers, which undoubtedly can be attributed in considerable part to their better understanding of the process. However, a partial

TABLE 7
TESTING PRACTICES OF BEEKEEPERS:
PERCENTAGE OF REPORTING BEEKEEPERS
WHO TEST FOR COLOR AND MOISTURE

District	Part-time		Full-time	
	Test for color	Test for moisture	Test for color	Test for moisture
	%	%	%	%
Pacific Northwest.....	0	5	26	6
California.....	6	3	34	17
Arizona.....	0	0	20	27
Intermountain.....	9	12	41	14
Plains.....	1	3	10	10
Texas.....	3	3	12	17
White Clover {West.....	6	6	15	18
{East.....	4	1	7	7
Southern.....	4	4	10	26

SOURCE: Beekeeper questionnaire returns.

explanation of differences in time and heat applications from district to district can be made on the basis of disparate honey characteristics, honey harvest practices, and packing methods.

Many producers feel strongly that no heat should be applied to honey, or that it should not be heated above room temperature, on the assumption that its essential nature is changed by heating. This view is widely ascribed to in the health food trade where honey labeled as "uncooked" is featured. Somewhat the same claims have been made about other foods, such as milk. It would, however, be difficult to establish that heats used in careful processing and packing of honey by either producers or packers could "cook" honey. Such honey might more accurately be referred to as "minimum," or "moderately-processed."

It is difficult to conclude whether the marked range of heating practices results from unconcern about the product, lack of knowledge about processing recom-

mendations (which have been widely available for some years), or the expense involved in acquiring proper equipment.

Testing. Considering the fact that producers' income depends mainly on color, and partly on moisture,² it is surprising that so few beekeepers test for either. Many people in this industry enter the marketplace without complete information about their product, and depend on others (often the other party to the sale) to enlighten them. Table 7 shows that the percentage of beekeepers who do *no* testing for color probably exceeds 75 per cent. This inattention to product specifications is one of the many unbusinesslike practices which abound in the industry.

A number of producers who do conduct tests use the Pfund grader for color, and a refractometer for moisture. The relatively high cost of even such devices as the simple comparator may be one reason for the low percentage of operators who test at all.³

² Moisture levels of fully-ripened honey are rarely so high as to endanger its quality. When ripe, honey has sufficiently high sugar content to prevent fermentation. For this reason the moisture test is less pressing than that for color.

³ At \$20-\$30, the comparator is considered a bargain by experts. For the thousands of beekeepers who sell their honey directly to end-users, the question of color never arises. For others, who may view the instrument as a luxury, their saving may actually net them an ultimate loss far greater than the initial outlay for the equipment, as a result of bargaining with incomplete knowledge, or failing to detect gradual color change in stocks.

Sampling. One of the techniques which has a bearing on the beekeeper's ability to bargain effectively, is the sampling of his honey lots. Not only does accurate sampling improve the producer's knowledge of what he really has to sell, but it increases his reputation with packers, who often complained that producers' samples did not accurately represent their honey. Questionnaire returns show a great variation of sampling techniques, indicating a general lack of knowledge of how samples should be taken in order to represent given lots. Thus, the reputations of many producers with their packer customers may well rest on chance, since the samples taken by methods described in many questionnaires may not necessarily be representative of a honey lot.⁴

Accurate sampling was considered sufficiently important for the California Beekeeper Association to appoint a committee in 1958 to develop a reliable sampling method. National and state associations could take the lead in disseminating data on processing and sampling, and the use of the beekeepers' own associations for spreading information and introducing uniform techniques, could be an effective device for building up channels of communication among beekeepers and strengthening the self-help aspects of producer associations.

That sound sampling techniques are crucial can be further attested to by the fact that 73 per cent of the packers and dealers base their decisions to purchase on a seller's advance sample. Packers and dealers generally check honey upon receipt of shipment, and it is at this time that a beekeeper's reputation (and income) may suffer if he has taken a grossly unrepresentative sample. Occasionally, colors are determined after receipt at the packer's plant, but this occurs

⁴ It should be emphasized that even with sampling on any acceptable basis, the chance of occasionally drawing a clearly unrepresentative sample will remain.

largely in the cooperative organizations, and among packers who have had long-standing working arrangements with producers.

Since samples submitted for an offer are nonuniform in container and weight, and many producers submit samples weighing as much as 2½ to 5 pounds, the cost of merely submitting samples can be substantial. Even a two-ounce sample, sufficient for normal packer testing purposes, costs approximately 30 cents, complete with jar, container and postage.⁵ Table 8 shows the most frequently cited sample sizes throughout the United States, the eight-ounce sample weight being the one most commonly used. It seems unlikely that a standard sample size or method of packing will be established except at packers' insistence, even though lower costs and more efficient handling could be achieved thereby.

There are evidently many aspects of processing, sampling, and testing about which producers are not clear; many beekeepers admit that they have difficulty in determining just what the specifications of their product really are. A concise handbook describing recommended processing techniques, mechanical and statistical methods for reasonably accurate sampling, and methods of grading, would be of material assistance in helping producers to carry on more informed marketing. Packers and dealers could also improve the general level of information throughout the industry by sponsoring joint seminars during state and national conventions.

Packers and Dealers

Although packing practices do not vary as widely among packers as they do among producers, packers also engage in a considerable variety of methods and techniques in preparing honey for market.

⁵ Dealers frequently require larger samples in order to have sufficient honey to offer subsamples to a number of prospective buyers.

TABLE 8
MODAL SIZE* OF HONEY SAMPLES
SUBMITTED BY PRODUCERS

District	Part-time producers	Full-time producers
	<i>ounces per sample</i>	<i>ounces per sample</i>
Pacific Northwest.....	16	4 or 8†
California.....	2	2
Arizona.....	Variable‡	8
Intermountain.....	Variable‡	8
Plains.....	8	16
Texas.....	2	8
White Clover { East.....	8	2
{ West.....	4 or 8†	8
Southern.....	8	8

SOURCE: Beekeeper questionnaire returns.

* Modal size: that is, most commonly reported size among all sizes used.

† An equal number reported using 4 and 8 ounce samples.

‡ Insufficient data to establish a modal size.

A dealer in the honey trade is a middleman who buys for his own account and resells the honey in the same form as he bought it; he does not process. Although dealers are concentrated in the import-export trade, there are a number of small-scale dealers in domestic trading activities who purchase in bulk.

Testing. There are wide variations among packers in both testing standards and testing techniques. The larger organizations, which market over more than local territories, are customarily equipped with a suitable range of instruments for testing color, moisture, and other components (such as ash, acid-base reaction). But whereas nearly every packer and dealer checks the color of the honey he buys, only 60 per cent of the reporting packers and dealers noted that they test for moisture. In fact, some packers who reported that they blend and pack to U.S.D.A. grades,⁶ do not test for moisture. This may be a hazardous practice if the label bears a U.S.D.A. grade, since those grades specify certain minimum soluble solids—the remainder of the product being moisture.

⁶ Color is not a part of grade. The reference to color above is a comparative comment only. See Appendix for U.S.D.A. grade description.

Discord in the industry often arises when colors which have been determined at the producer level on a comparator are later checked on a Pfund grader, and rejected as being unsatisfactory. The problem is common in the export trade and is complicated for exporters by the fact that the U.S.D.A. grades are officially based on the standards of the comparator.

In January, 1959, the National Honey Packers and Dealers Association requested the U.S.D.A. to make the Pfund scale ranges the official color standards, at least in the export trade. The Pfund grader is often thought to be more accurate because it has an imposing design and can be read on a millimeter scale, whereas differences near the borderlines of the comparator color blanks are sometimes difficult to detect. The Pfund grader is subject to wide variations in accuracy, however, and must be recalibrated at frequent intervals (6 months suggested), with no assurance that readings on two different graders will coincide.⁷ It is clear that the factor of human judgment can-

⁷ In a 1950 study by U.S.D.A., it was shown that wide discrepancies were found among Pfund graders. However, in spite of the mechanical requirement of recalibration, the Pfund is a very useful instrument in blending practices.

not be entirely eliminated from grading, and adoption of the policy proposed by the packers and dealers would deprive most beekeepers of the inexpensive official color grading standard, without substantially improving the basis of grading.

Clarification. Fifty-three per cent of reporting packers filter honey. This is in contrast to the 13 per cent who settle and strain, 27 per cent who strain only, and 7 per cent who settle only. A very high percentage of *bulk* honey (sold in tanks, drums, or 60's) is strained only; filtration is performed on an estimated minimum of 75 per cent of the retail pack.

Blending. Blending is performed by 60 per cent of the reporting packers, and it is estimated that in excess of 80 per cent of the retail pack released by packers is blended to various color grades. The following objectives may be achieved by blending:

- A standardized product can be promoted as to flavor and color.
- Fluctuating supplies of colors within floral sources can be balanced out.
- Cheaper types of honey can be mixed with more expensive ones, thereby stabilizing costs or increasing profits.
- Fermentation can be halted and caramelized flavor hidden.

Many packers seek the first two objectives. A number of proprietary blends of several floral sources are energetically promoted around the country. In some areas the native clover honey is blended with that of another region to produce a more pleasing flavor. Packers state in their questionnaires that marketing problems which arise from variations in honey are largely caused by the change in quality of the various floral sources. Uniform year-to-year honey color is recognized as being of utmost importance in fostering both consumer loyalty and good store relationships.

The third objective was not mentioned by packers, but is common practice with agricultural commodities which lend themselves to uniform mixture.

The fourth objective was mentioned in interviews and correspondence.

It is important to keep in mind that honey may be graded and labeled either to U.S.D.A. or state specifications. The U.S.D.A. specifications are "A" (Fancy), "B" (Choice) or "C" (Standard); color class is sometimes included on the label. About 30 per cent of the reporting packers blend to U.S.D.A. Grade A of various colors; the actual physical volume of honey involved exceeds 50 per cent of the total reported by packers. The other 70 per cent merely attempt to achieve uniform color standards within the limits of local requirements.

Blending and labeling practices tend to parallel each other, although the data which packers put on their labels need not cover the entire range of the product specifications. Field study has shown, however, that floral source, grade, and color information is not usually found on labels east of the Intermountain District, even where the packer has adhered to the highest U.S.D.A. grade standard. Questionnaire answers on labeling practices concur with this finding. Table 9 shows the range of label data found west of the Plains States and Texas compared with that found east of that line:

The fact that there are many more private label packs in eastern stores, coupled with the minimum label information given regarding floral source and color, might lead one to conclude that eastern consumers depend more on skillful blending and distributor reputation than is likely to be the case in the west. On the other hand, little is known about what consumers look for when they buy honey. Label information merely presents *opportunity* to buy more intelligently, or to develop identifiable preferences; it does not necessarily educate the buyer.

TABLE 9
COMPARISON OF EASTERN AND WESTERN LABELING PRACTICES

Area	Trade name floral source and color	Trade name floral source	Trade name color	Trade name only
	% of replies	% of replies	% of replies	% of replies
Plains states, Texas and east.....	33	39	11	17
Intermountain and west.....	53	41	0	6

SOURCE: Packer questionnaire returns.

Heating. The desirability of heating honey beyond the point necessary to liquefy it for easy handling is questioned by some packers, just as it is among producers. The packer's attitude toward honey heating is primarily colored by his responsibility for bottling honey which has a suitable shelf life and is free from the likelihood of granulation and fermentation. Generally speaking, nearly all large-volume packers flash heat to 160° in order to pasteurize the yeasts which may cause fermentation, and also filter. In a few plants east of the Intermountain District, evaporation columns are used as an alternative method for suppressing fermentation and maintaining uniform moisture content in the bottled honey.

ANALYSIS OF CONTAINER USAGE

Container usage has vital economic and merchandising implications because it figures in the marketing picture all the way from the honey house to the consumer's kitchen. This section assesses several aspects of container usage, based on information garnered from questionnaire returns and field interviews.

Beekeeper Container Usage

Since only 38 per cent of beekeepers owning more than 25 colonies restrict their sales entirely to bulk forms (i.e., tanks, drums, or 60-pound cans), it follows that a suitable container for retail trade. Fifty-

four per cent of full-time beekeepers restrict their sales entirely to bulk forms.

Table 10 is a district-by-district record of bulk container usage. The percentage of full-time and part-time beekeepers in each district who sell honey in retail trade containers can be ascertained by deducting the figures in the "Bulk Containers Only" column from 100 per cent.

Drums. The 55 gallon drum is likely to become more popular because its use constitutes a potential cost saving. For this reason data on drums was solicited from both producers and packers. Use of drums is, of course, still far behind 5 gallon cans in small scale operations. But as Table 10 indicates, a sizable percentage of full-time producers use drums for a portion of their output in the White Clover, Southern, and Texas districts. Nationally, about 20 per cent of full-time beekeepers use drums for all or part of their shipments.⁸

As Table 11 shows, data on beekeeper costs⁹ for drums are fragmentary. Their cost varies according to quantity purchased, gauge, construction, painting lows that some portion of the output of the other 62 per cent is packed in con-

⁸ It is estimated that about 3 per cent of the honey sold to packers and dealers is delivered in drums.

⁹ The reader should not interpret the averages shown in this chapter as representing more than regional and quantity cost differences. Obviously, the cost which means most to a producer is his own cost.

TABLE 10

PERCENTAGE OF BEEKEEPERS SELLING IN BULK ONLY, THOSE RESTRICTING CAN USAGE TO NEW CANS, AND THOSE WHO SELL PARTLY IN DRUMS BY DISTRICTS IN THE U.S., 1957

District	Percentage of part-time beekeepers			Percentage of full-time beekeepers		
	Who sell in bulk containers only*	Whose can usage is restricted to new cans†	Who sell some output in drums	Who sell in bulk containers only*	Whose can usage is restricted to new cans†	Who sell some output in drums
Pacific Northwest.....	30	12	15	52	..	11
California.....	44	79	1	91	81	5
Arizona.....	86	50	..	100	91	..
Intermountain.....	25	43	2	49	41	10
Plains.....	30	29	9	45	27	15
Texas.....	20	63	13	68	6	29
White Clover Belt {West.....	19	52	2	34	49	31
East.....	28	52	19	32	41	32
Southern.....	4	63	2	43	71	61‡

SOURCE: Beekeeper questionnaire returns.

* "Bulk containers" means tanks, 55-gal. drums, or 60-lb. cans.

† This does not mean that their entire sales are in 60-lb. cans.

‡ Dominated by data from Florida.

TABLE 11

COMPARISON OF PRICES PAID BY BEEKEEPERS FOR NEW AND USED BULK CONTAINERS* BY DISTRICTS IN THE UNITED STATES

District	Paid by part-time beekeepers				Paid by full-time beekeepers			
	Cans		Drums		Cans		Drums	
	New	Used	New	Used	New	Used	New	Used
	c/can	c/can	\$/drum	\$/drum	c/can	c/can	\$/drum	\$/drum
Pacific Northwest.....	75	32	no observations		65	30	no obs.	1.50(r)
California.....	62	32	....	1.50(r)†	56	30	....	6.00
								1.50(r)
Arizona.....	65	36	no observations		60	30	no obs.	.....
Intermountain.....	72	35	no observations		63	34	8.35	7.00
								1.50(r)
Plains.....	71	28	6.50	1.50(r)	65	30	7.50	1.50(r)
Texas.....	73	37	7.50	1.50(r)	61	30	7.50	no obs.
White Clover {West.....	66	30	7.50	1.50(r)	60	30	7.50	no obs.
East.....	68	31	6.00	1.50(r)	61	30	no obs.	1.50(r)
Southern.....	76	31	no obs.	1.50(r)	65	30	7.50	1.50(r)

SOURCE: Beekeeper questionnaire returns.

* Average of prices paid per container in all quantities.

† (r) — Rental

specifications, and geographical location. And there are almost daily price fluctuations in used drums as conditions of demand and supply change in each area. The one drum cost which appears to be static and uniform, however, is the rental rate of \$1.50 per drum, at which rate

more and more packers are providing drums to their suppliers. Rentals bring the beekeeper's container costs to about ¼ cent per pound, and a beekeeper selling 80,000 pounds would save at least \$600 per year over the cost of new 60-pound cans. The illustration points up

not only the direct saving but the opportunity to reduce working capital as represented by a can supply.

Producers tend to regard the necessity for installing a filling pit and hoisting equipment as an obstacle to the use of drums. Although direct labor costs would probably not be affected¹⁰ (except in the case of the very large beekeeper), the use of drums would eliminate much heavy lifting and otherwise make for more efficient use of labor.

The greatest impetus to the introduction of drums has come from packers, a number of whom have equipped their plants to handle them. Their claim is, however, that although individual beekeepers who have converted to drums are enthusiastic, there is a generalized reluctance on the part of producers throughout the industry to adopt this method of bulk packing.

Five gallon cans (60-pound containers). Table 11 shows the average cost of new and used 60-pound containers in 1957. Since these cans are used more extensively than drums, the data are more reliable indicators of price differences from district to district. In general, part-time producers pay a higher price for new cans than do full-time operators, probably because their average purchases are not large enough to rate discounts awarded bigger accounts. The differential is much smaller or nonexistent on used cans, but in most districts a higher proportion of part-time operators pack their honey in new cans.¹¹ (Table 10.)

¹⁰ In order for direct labor costs to be reduced, the introduction of such devices would have to result in displacement of full- or part-time labor. In family-type operations this would not occur, nor would it be likely to occur in any except those large enough to have nearly full-time labor handling cans from filling to storage and/or loading.

¹¹ Note that this does not mean that a higher physical volume of honey is sold in new cans. It signifies only that more part-time operators prefer to pack in all new cans than is the case with full-time beekeepers.

In some areas of the country there are two grades of used cans:

- Grade 1: Used only once and free from dents and rust. Usually sells for about 10 cents more than Grade 2.
- Grade 2: Used more than once. May be dented and/or rusted. Prices vary, running up to about 30 cents each.

A very substantial percentage of beekeepers in both classes prefer to use new cans entirely (Table 11), and during interviews, there were strongly held opinions on both sides of the question of whether residue in used cans could adversely affect subsequent honey contents. It is most likely that chance plays a considerable part in what happens to subsequent fillings. If a producer fills cans which contained dark, strong honey with a light, mild honey, an adverse change may take place.¹² The odds on this are reduced where packers purchase from a few producers who restrict operations to the same limited geographical areas and floral sources year after year. In this way there is a "float" of cans among a relatively few producers whose product and honey-house practices are known to the packer. Considering the variations in quality within the same floral source from year to year, however, even this practice may be hazardous.

Since many packers pay a premium of $\frac{1}{2}$ per cent per pound for honey in new cans, which in effect covers the cost of the can, the lower price producers pay for used cans may ultimately represent an illusory saving. In the case of the full-time beekeeper who markets 80,000 pounds of honey, he would net about \$425 in additional profit by selling in used cans if he sold to packers who pay no premium for new-can pack. If he sells to a packer who pays the premium, his

¹² Some laboratory tests to determine effects of various residues might be helpful in settling the arguments.

profit would be reduced only by the interest on the additional working capital required for new cans, probably not more than \$5 to \$7, since producers tend to market their crop within a calendar quarter after harvest. This is actually little to pay for insurance against the changes in honey flavor and color that might take place as a result of the residue found in used cans.

The five-gallon can drains slowly, requires a good deal of handling per unit of honey, and according to an official long connected with the industry, is generally felt to be inadequate.

Can filling: Short weights in 60-pound cans evidently come up often enough to constitute a continuing threat of ill will between packers and producers. Because of the difficulty of handling the cans, most packers find it impractical to weigh entire loads of honey, or even a substantial part, and do so only when they feel they have reason to question a shipment.¹³ Those large packers who routinely make periodic weight checks generally prefer to overlook modest shortages on the theory that these will be offset by overages.

If a producer's weighing equipment is inaccurate, he may inadvertently alienate packers through short weights, or give away honey through long weights. Clearly, good scales, frequently checked, have a bearing both on reputation and profits.

Retail containers. Since about one-third of our honey crop is sold "direct," it is relevant to the general marketing picture to know how that third is packaged. Table 12 shows how the various retail containers compare in popularity with producers.

Producer preferences tend to be con-

centrated among the larger sizes, mainly 5- and 10-pound glass jars or cans. Four-pound containers were significant only in the White Clover Belt and 2½-lb. jars were significant only in the Southern District.

Preference for smaller sizes (1 lb. or less) is highest in the Plains, White Clover, and Southern districts, where approximately one-third of all producers use 1-lb. and 8-ounce containers.

The reason for the popularity of the larger containers with producers cannot be inferred from these data with any confidence, but only speculated about. Producers may deliberately turn to a container size not notably used by packers, or they may simply think in terms of reducing bottling labor and costs.

Packer Container Usage

Drums. The adoption of drums can be brought about only by a combination of changed thinking on the part of producers, and willingness to modify methods and invest funds on the part of the packers. Since much of the pressure for the use of drums comes from packers, they are more likely to be amenable to adjustments, although the question of drums is a good illustration of how major processing innovations are dependent upon changes at all industry levels, since producers must also make the necessary honey house changes.

There are also, however, many packers whose reluctance to convert to drums is losing them the benefits of mechanized handling. A number of large honey plants have installed additional capital equipment and developed a fresh approach to plant engineering, by using drums entirely. They are managing their entire bulk storage, processing in-feed, and packed stock, with a single warehouseman. An observer must conclude, in passing, that many packing plants in the honey industry are extremely inefficient by modern industrial engineering standards.

¹³ Truck scales were not observed at most plants visited. Apparently the use of public team scales is more inconvenient than living with the problem.

TABLE 12
RETAIL CONTAINER SIZES USED BY PRODUCERS, 1957
PERCENTAGE OF BEEKEEPERS USING EACH SIZE, BY DISTRICT

District	5 or 10 lb. can*	Glass jar						
		5 lb.	4 lb.	3 lb.	2½ lb.	2 lb.	1 lb.	8 oz.
	%	%	%	%	%	%	%	%
Pacific Northwest.....	14	44	—†	8	—	14	18	2
California.....	13	31	—	13	—	18	25	—
Arizona†.....	—	—	—	—	—	—	—	—
Intermountain.....	39	30	—	—	—	6	20	4
Plains.....	18	34	—	1	—	16	28	3
Texas.....	18	26	—	11	—	19	23	3
White Clover.....	11	39	4	3	—	10	31	2
Southern.....	14	25	—	5	6	17	31	2

SOURCE: Beekeeper questionnaire returns.

* Mostly 10 pound.

† Insufficient information shown by "—".

The introduction of bulk handling in drums, related as it is to beekeeper relationships, plant storage, and processing input, might be an ideal point at which to start on programs of plant efficiency.

A distinct disadvantage in the use of drums is the space they take up in the warehouse and on trucks. Because cans are square, they can be packed to utilize space more efficiently, permitting storage or transport of a greater amount of honey in a given warehouse area or truck bed.¹⁴ This is a serious consideration which has to be weighed against the handling savings afforded by drums.

The packer practice of renting drums at \$1.50 each, thus minimizing beekeeper container costs, may foster a closer working relationship between packer and producer. Also, by steam-cleaning his own drums, the packer has some additional control over quality, which he otherwise could gain only by using new 60-pound cans.

Most packers who use drums favor open tops; a few, limited by the processing capacity of their equipment, use drums with closed tops and bung openings which release honey at a slower rate. A drawback to the use of drums

with open tops is that variations in their circumferences present the problem of matching tops to them after cleaning.

The discard rate of drums cannot be accurately assessed because of insufficient data. In the barrel trade, the average life of a steel drum is considered to be about 6 "trips," which would be about 6 years in the honey industry (a discard rate of 17 per cent per year), although careful handling may appreciably improve this figure. The discarded drums are either exchanged or sold to beekeepers and customers.

Five-gallon cans. Data supplied about this receptacle under *Beekeeper Container Usage*, generally apply also to packers.

Packers and dealers dispose of cans, in which about 70 per cent of their honey is received, in numerous ways. Calculations based on packer questionnaire returns show that approximately 60 per cent of these cans are sold or exchanged to beekeepers and customers, 12 per cent are re-used in the plant, and 28 per cent are disposed of as salvage or discarded. This last figure would indicate an average can life of about four years, although most packers interviewed on this subject estimated it as nearer three years.

¹⁴ Approximately 25 per cent more space than drums.

Approximately 13 per cent of packers' total domestic sales volume is shipped in 5-gallon cans.

Retail containers. About 75 per cent of the domestic sales volume of packers is in containers suitable for retail trade. This includes cans, glass, paper cartons, polyethylene squeeze bottles, and specialty packs of various kinds. Squeeze bottles and specialty packs accounted for about 1 per cent of the total retail pack in 1957. At that time polyethylene containers had only recently been introduced, mainly in the far west. The use of plastic squeeze bottles will probably increase because they "cut off" as soon as pressure is released, making the table serving of honey both neater and easier. Children enjoy serving themselves honey by this method.

Glass containers comprised an estimated 80 per cent of the retail volume; cans, 12 per cent; paper cartons, 7 per cent; squeeze bottles and all others, 1 per cent.

From fragmentary data, it can be surmised that possibly half of the total retail pack of honey is packaged in 1-pound containers.

Glass containers. Glass containers are found in many sizes, even within narrow geographical limits. It is not uncommon in the midwest and northeast to find 1-pound and 2-pound containers in one store and 1-pound and 2½-pound containers in another within the same city block—all of the same brand. Although 14 different glass jar sizes for extracted honey can be found throughout the east and midwest, most of it is bottled in 1 pound, 8-ounce, 2-pound, and 5-pound containers. (In the far west, cans are commonly used for 5-pound weights rather than jars.)

Competition and merchandising strategy dictate the addition or discontinuation of various container sizes. One packer recently discontinued one less-than-1-pound size and substituted an-

other which did not *look* substantially smaller than a 1-pound jar (although it was clearly labeled as to weight), in order to minimize a price differential between his label and the chains' private labels. Criticism of the multiplication of jar sizes by marketing authorities is well known. Assortments of five-ounce, 12½-ounce, 13-ounce, 20-ounce, and 22-ounce jars are not only misleading to the consumer, but render the concept of marketing flexibility ridiculous. As a result, in some areas, legislative action has prohibited other than prescribed standard sizes. In the interests of increased honey sales, it is suggested that packer organizations work jointly toward elimination of extremely small jars.

It might be noted that motivation and industrial engineering research have radically changed jar shapes and labels in other industries without changing standard weights. Packer complaints of limited jar selections evade the fact that most large jar molders provide design services to their customers. Considering the importance of self-service in food retailing today, the need for attractive container and label design for maximum display and merchandising purposes cannot be overemphasized.

Paper containers. Paper containers are restricted to creamed honey. In another study¹⁵ it was found that creamed honey was packaged in waxed paper containers about 78 per cent of the times it was found on store shelves in cities east of the Rocky Mountains.

Cans. Honey in cans is not found widely throughout the United States. Although the five-pound can is a popular item in the far west, it is rarely seen in the eastern areas except as packed for institutional trade.

Producers fear the practice of packing

¹⁵ Ellsworth, H. M., *Expanding the Consumption of California Honey*, Bureau of Markets, California Dept. of Agriculture, Sacramento, 1953. See this study for additional details on container sizes.

lower grade¹⁶ honey in 5-pound cans may result in long-range injury to the industry. It is not uncommon to find impressive lithographs on these cans of lower grades of honey, and during the course of this study several housewives maintained that cans they had purchased had been ambiguously labeled. On two occasions the author sampled canned honey which was actually better suited for baking than the table.

In an attempt to protect consumers, some states require in their agricultural codes¹⁷ the "plain and conspicuous" marking of opaque containers with the color of the honey, although in his study Ellsworth¹⁸ observes that adherence to this statute is somewhat less than strict, a finding confirmed by the author.

It is suggested that where there are labeling statutes which apply to honey,

¹⁶ Note that the reference is to "lower grade" rather than "lower quality." While the latter term conceivably applies to some of this type of pack, there are definite regional preferences for darker, stronger-flavored grades. Also such dark honeys may be equal in basic qualities to lighter, milder grades.

¹⁷ See Chapter 2a, Honey Standards, Par. 843.2, California Agricultural Code, 1949.

¹⁸ Ellsworth, H. M., *Expanding the Consumption of California Honey*, Bureau of Markets, California Dept. of Agriculture, Sacramento, 1953, p. 19.

opaque containers be required to bear on the top center or bottom center of the label, the color and possibly the floral source of the honey, in letters $\frac{3}{8}$ " high, in an area not less than 2" long and free from other printing.

Packer container costs. Although there is little detailed cost information, some facts can be inferred from questionnaire returns at hand.

Packers reported their container costs from 3 to 8 cents per pound of honey, with the average at about 5 cents per pound—a substantial percentage of the price at which the packer sells his product. In view of this, it is clearly to the packers' advantage to keep himself informed about container features which would return a maximum of merchandising benefits.

Experiments are currently being made with pliofilm sacks within a fiber carton, which would reduce producer container cost to about 18 cents per 60 pounds of product. The major drawback to the use of this material is the excessive adherence of honey to the pliofilm when the container is drained.

An industry program or federal assistance might speed the development of an inexpensive, efficient container.

III. MARKETING ACTIVITIES

SEASONAL PATTERNS OF HARVEST AND SALES

Beekeepers

ALTHOUGH 99 PER CENT of the harvesting and extracting throughout the United States is done in three quarters of the year, Tables 13 and 14 show that marketing pressure on the producer rises sharply in the third calendar quarter, during which period about three-quarters of the nation's honey crop is harvested. The patterns of harvest and sales by quarters do not vary significantly from year to year, if a generalization can be drawn from what producers reported about the harvest and sales patterns of 1955 and 1957.

Marketing pressures at harvest differ for part-time producers and full-time operators. In most districts the part-time operators generally start extracting earlier, and in almost every district have a higher proportion of their harvests in the second quarter.¹ Nationally, part-time producers sell about 50 per cent more of their crop in the second quarter than do full-time operators, although this varies from district to district. This early harvest pattern evidently constitutes a market advantage in earlier sales in the Pacific Northwest, Intermountain, Texas, White Clover and Southern districts,² but a slight market disadvantage in the other three districts. Part-time operators have a significantly smaller carryover than do other producers.

¹ Compare 2d quarter harvest, Tables 13, 14.

² Compare 2d and 3d quarter sales, Tables 13, 14.

Although the data for all producers were too scant to allow for authoritative calculation of total industry carryover, it was found in this study that, excluding the hobbyists' extremely small carryover, the combined carryover for all other producers was 15 per cent of their 1957 crop. However, the yearly U.S.D.A. estimate of honey on hand for sale as of December 15, 1957, arrived at this carryover figure as 27% of the year's crop. It is the author's judgment that the disparity between these percentages cannot wholly be explained by the absence of precise data on hobbyists and the fact that the cut-off dates used in the two appraisals were sixteen days apart. Inasmuch as marketing and purchasing decisions are necessarily closely postulated on carryover estimates, it is suggested that detailed study be made of this critical factor.

Calculations based on questionnaire replies show that approximately 7 per cent of the 1957 crop was sold by producers in the second quarter (combined data of Tables 13 and 14). Yet packers and dealers show 21 per cent of total purchases in that quarter (Table 15). The lack of agreement between the reported producer sales and packer purchases can be attributed to a difference in concept as to what constitutes a "sale" at the producer level and a "purchase" at a packer level. Since most producers are on a cash basis, and packers are on an accrual basis, an accounting difference tends to arise.³ Also, there are many informal ar-

³ For tax and other accounting purposes, beekeepers record a sale upon payment; packers

TABLE 13
HARVEST AND SALES PATTERNS FOR HONEY:
PART-TIME BEEKEEPERS, 1957

District	Percentage of total harvested and sold each calendar quarter								
	Per cent harvested—quarters				Per cent sold—quarters				
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	Carry-over
Pacific Northwest..	..	20	74	6	..	7	50	36	7
California.....	2	28	59	11	2	10	22	59	7
Arizona.....	..	46	47	7	..	6	22	63	9
Intermountain.....	..	..	99	1	9	7	19	57	8
Plains.....	..	6	76	18	..	1	40	52	7
Texas.....	17	28	47	8	11	24	27	25	13
White Clover.....	..	12	76	12	..	8	27	53	12
Southern.....	3	53	40	4	3	36	37	23	1
NATIONAL									
TOTAL.....	1	15	72	12	1	9	28	50	12

SOURCE: Questionnaire returns of beekeepers.

TABLE 14
HARVEST AND SALES PATTERNS FOR HONEY:
FULL-TIME BEEKEEPERS, 1957

District	Percentage of total harvested and sold each calendar quarter								
	Per cent harvested—quarters				Per cent sold—quarters				
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	Carry-over
Pacific Northwest..	..	15	85	..	..	4	17	69	10
California.....	1	18	73	8	1	11	35	38	15
Arizona.....	..	39	57	4	..	8	53	31	8
Intermountain.....	..	3	94	3	..	4	19	52	25
Plains.....	..	5	80	15	..	4	23	61	12
Texas.....	3	22	72	3	3	8	43	42	4
White Clover.....	..	10	85	5	..	5	23	56	16
Southern.....	14	52	28	6	14	20	31	21	14
NATIONAL									
TOTAL, 1957....	1	13	80	6	1	6	27	49	16
NATIONAL									
TOTAL, 1955....	1	12	80	7	3	6	31	51	9

SOURCE: Questionnaire returns of beekeepers.

rangements between producers and packers involving physical transfer of honey, without either title or money changing hands for some time.

Packers

Table 15 shows the approximate seasonality of purchases and sales of honey

record a sale when a commitment is made to the beekeeper, or when they take possession of the honey.

by U. S. packers and dealers, based on 1957.

Note that the distribution of packer and dealer purchases is based on actual poundage purchased by packers and dealers, and estimated acquisitions by cooperatives from their members. Since cooperatives must accept honey from members, "purchases" must take place close to harvest and not under influence of predicted sales needs. Private pack-

TABLE 15
QUARTERLY PURCHASES AND SALES OF HONEY:
PACKERS AND DEALERS, 1957

	Calendar quarters				
	1st quarter % of total	2nd quarter % of total	3rd quarter % of total	4th quarter % of total	Carry-over % of total
Purchases.....	15	21	42	22	..
Sales.....	25	18	29	28	20

SOURCE: Questionnaire returns of packers and dealers.

NOTES: Percentages sold by quarters and carry-over for 1955 and 1957 varied from each other by not more than 1 per cent.

Indicated percentages purchased by quarters in 1955 were slightly lower in the second quarter and slightly higher in the 3rd and 4th than is indicated for 1957.

"Purchases" shown above are based on poundage reported bought by private firms plus the estimated receipts of cooperatives by quarters. Quarterly receipts by the latter organizations were unavailable, although total poundage is known. In general, private firms' purchases seem to show some tendency to lead sales by about one quarter. (Several packers also stated that they try to adhere to about one quarter's lead time.)

TABLE 16
ANALYSIS OF PACKERS' QUARTERLY PURCHASES, SALES AND CARRY-OVER
AS A PERCENTAGE OF ANNUAL SALES
(Calendar Quarters)

	1st quarter	2nd quarter	3rd quarter	4th quarter
Carry-over from previous quarter (per cent of annual sales).....	20	18	25	22
Purchases (per cent of annual sales).....	18	24	33	25
Sales (per cent of annual sales).....	20	17	36	27
Carry-over into next quarter (per cent of annual sales)...	18	25	22	20

ers' purchases tend to be somewhat more sales-oriented, but are still strongly harvest-oriented, as is demonstrated by the fact purchase activity is heaviest in the third quarter (Table 16).⁴

Seasonal behavior cannot be appraised without taking into account the quarter-to-quarter carryover. As shown in Table 16, the largest carryover is from the second into the third quarter, when heaviest purchases are made. This may be explained by the fact that new crop honey begins to flow into packer hands during the second quarter, when packer sales volume is at its lowest level of the year. Note from Table 15 that there is a 28 per cent drop in honey sales from the first to second quarter—from 25 per cent of annual sales to 18 per cent. This is statistical confirmation of the frequent

packer interview response that there is generally a drastic decline in honey demand in the second quarter. The Table 16 analysis suggests that individual packers might effectively minimize inventory costs by applying mathematical programming methods to purchases. The storage function might then revert to the producer, but he could perhaps capitalize on this by controlling the movement of his crop into dealers' hands and forestalling the wide price fluctuations throughout the year.

Packers evidently accept the historical summer seasonal drop in honey sales as an immutable fact of honey industry life, rather than a real promotional challenge. Whereas selling campaigns are reportedly heavy around the period of the opening of schools in September, packers seem to be overlooking the fact that, because of high energy needs during

⁴ Private packers and dealers only. As reported for 1957 in questionnaire returns.

the summer, there is a heavy home use of sugar in beverages and dairy products. Investigation might indicate how honey could be brought into this home consumption picture. Many industries launch advertising programs to offset seasonal declines; coordinated effort in this direction by the entire honey industry could conceivably result in interesting consumers in honey as a summer food. The efforts of the few isolated packers who have tried to influence local habits of honey usage have been unsuccessful.

Seasonality assumes importance for the full-time producer at the point that his preoccupation with the various activities of production, harvesting, and processing may delay the entry of his new-crop honey onto the market. Again—local cooperatives could perform real service by conceivably undertaking responsibility for the extraction process.

In the constant reappraisal of these seasonal patterns, the honey industry may well find real opportunities for increased volume and profits.

CHANNELS OF DISTRIBUTION

Beekeepers

An important aspect of any marketing analysis is a study of the channels of distribution. About one-third of the honey sold by producers in the United States by-passes the producer to packer (or dealer) to food wholesaler to retailer to consumer sequence.⁵ "Direct" marketing by hobbyists involves approximately 19 per cent of the total U. S. crop.⁶ Only 5 per cent of hobbyist respondents mentioned sales to dealers or packers. Honey volume of producers with less than 25

⁵ This sequence is considered the "normal" channel for purposes of this study.

⁶ Any assumption of packer (dealer), wholesaler or retailer functions, categorizes the transaction as a "direct" sale.

colonies (disposed of through home use, to friends, on-farm sales, or to local retailers), is larger than the "direct" sales of part-time and full-time beekeepers in the Plains, White Clover, and Texas districts. Packers and dealers, however, also indicate that about 19 per cent of their domestic sales are "direct" (See below). Although packer interviewees complained that this "direct" marketing creates additional competitive pressure throughout the industry, the total effect of this pressure is difficult to assess since the packers and dealers themselves are presumably reaping some gains from this technique.

An important operator is the producer-packer, a large-scale beekeeper who packs his own output and frequently purchases honey from other beekeepers for packing. Producer-packers market a significant percentage of the crop in the Pacific Northwest, Intermountain, White Clover, and Southern districts. In this study, producer-packers are most often classed as packers. Their marketing practices tend to be analogous to those of other packers.

Tables 17 and 18 show the distribution of output of part-time and full-time beekeepers by honey district through various marketing avenues. Whereas 62 per cent of part-time operators' honey⁷ and 87 per cent of that produced by full-time beekeepers⁸ moves through packers and dealers, there are wide variations in the different honey districts. It can be generalized from the data that a higher percentage of honey moves through "normal" commercial channels from those districts which are surplus producers, have large numbers of full-time or near full-time operators, and are separated by distance from large consuming areas of the country.

⁷ Percentages for part-time operators refer to an estimated 37 per cent of the U. S. honey crop—about 90 million pounds in 1957.

⁸ Percentages for full-time operators refer to an estimated 44 per cent of the U. S. honey crop—about 106 million pounds in 1957.

TABLE 17
CHANNELS OF DISTRIBUTION; SALES OF PART-TIME BEEKEEPERS
HONEY DISTRICTS OF THE UNITED STATES, 1957

District	Percentage of honey sales to:									
	Packers	Dealers	Bakers	Chains	Indep. retrs.	On-farm sales	Mail order	City route	Other bkprs.	All other
Pacific Northwest.....	47	7	1	..	8	28	..	8	..	1
California.....	36	37	..	..	16	9	..	2	..	..
Arizona.....	95	1	..	..	2	2	..	..	..	..
Intermountain.....	56	9	..	4	7	14	1	5	4	..
Plains.....	76	6	..	2	8	6	1	1	1	..
Texas.....	38	7	11	..	26	12	1	..	4	1
White Clover { West*.....	38	10	7	4	18	13	2	3	3	2
{ East†.....	70	10	1	1	5	7	2	..	2	2
Southern.....	44	12	6	6	17	11	2	..	..	2
NATIONAL TOTAL.....	50	12	4	4	13	11	1	2	2	1

SOURCE: Calculations from beekeeper questionnaire returns.

* West of Pennsylvania.

† New England, Middle Atlantic States, and Delaware.

TABLE 18
CHANNELS OF DISTRIBUTION; SALES OF FULL-TIME BEEKEEPERS
HONEY DISTRICTS OF THE UNITED STATES, 1957

District	Percentage of honey sales to:									
	Packers	Dealers	Bakers	Chains	Indep. retrs.	On-farm sales	Mail order	City route	Other bkprs.	All other
Pacific Northwest.....	76	4	..	..	11	4	..	..	..	1
California.....	68	30	1	..	1	..	..	..	..	..
Arizona.....	61	38	..	..	..	1	..	..	..	..
Intermountain.....	81	2	1	..	8	5	..	..	..	1
Plains.....	89	1	2	4	3	1	..	..	..	..
Texas.....	93	4	..	..	2	..	..	..	..	1
White Clover { West* East†	59	15	8	12	3	1	1	1	..	..
Southern.....	68	12	5	1	5	3	..	..	6	..
NATIONAL TOTAL.....	55	13	4	15	10	1	..	..	..	2
TOTAL—full-time and part-time	77	10	2	3	5	2	..	Not significant	..	1
	74	10	2	3	6	3	..	Not significant	..	2

SOURCE: Calculations from beekeeper questionnaire returns.

* West of Pennsylvania.

† New England, Middle Atlantic States, and Delaware.

TABLE 19

ESTIMATED PERCENTAGE OF HONEY CROP SOLD
"DIRECT" BY PRODUCERS, 1957

District	Percentage of total produced
Pacific Northwest.....	44
California.....	12
Arizona.....	4
Intermountain.....	20
Plains.....	29
Texas.....	37
White Clover.....	54
Southern.....	49
U. S. TOTAL.....	31

SOURCE: Questionnaire returns of beekeepers, state apiary inspectors, and extension apiarists.

Table 19 shows the estimated percentage which is sold by *all* beekeepers "direct" (that is, by by-passing one or all of the functional stages between producer and consumer) in the several honey districts. The movement of such a large portion of the industry's output through "direct" channels, results in the extremely wide range of standards as to quality, packaging, labeling, and pricing; it is extremely unwieldy to attempt to standardize such a large portion of the industry's output over which it is so difficult to gain any control.

The packer must, in the long run, choose between offering producers the most desirable market, and facing the distinct likelihood of a growing number of producer-packers and cooperatives. The fact that producers may undertake packing functions without recognizing the costs and risks involved, is more than a minor consideration, since inexperienced and uninformed marketers can be even more damaging to an established marketing structure than informed ones who simply act to improve their own position in some particular marketing situation.⁹

⁹It should be noted here that in most cases it was observed that producers sell table honey at about the same price as local retail rates or higher. A few examples of large-scale producers selling lower than dealers were cited.

Packers and Dealers

The honey sold domestically by packers and dealers finds its way to consumer outlets mainly through food brokers and wholesalers. Out of the estimated 167 million pounds handled by packers and dealers in 1957, about 20 million, or 12 per cent, was exported. Of the remaining, or domestic sales, it is estimated that 68 per cent was sold through food brokers and wholesalers. Direct sales to retailers constituted 19 per cent of domestic sales, those to bakers and other users 13 per cent (See Table 20).

The importance of food brokers¹⁰ is further indicated by the fact that even excluding those used by the largest packing organizations, the average number of brokers mentioned by reporting packers was 16. Few packers have what might be called a "sales organization"; even in the largest firms, salesmen work primarily in assisting the broker or wholesaler. Those packers who report having more than a few salesmen tend to carry other products.

¹⁰The breakdown shown in this analysis is concerned with the manner in which primary sales of packers and dealers are made. Functions and activities are changing so rapidly in the food industry that the definitions of the various middlemen are tending to become less precise, even to people in the industry.

TABLE 20
DOMESTIC HONEY SALES OF PACKERS
AND DEALERS, 1957
PERCENTAGE OF SALES BY TYPE OF BUYER

Type of buyer	Percentage of domestic sales
Brokers.....	48
Food wholesalers.....	20
Chains.....	18
Independent retailers.....	1
Bakers and other.....	13
TOTAL.....	100

SOURCE: Questionnaire returns of producers, honey packers, and dealers.

Over half of the privately-owned packing firms state that they time their purchases to replenish working inventory.¹¹ There is also, apparently, some trend on the retail level toward greater warehousing of some items and more shelf-servicing of others. Some packers, increasingly faced with problems attendant on limited stocking by stores and chains, may feel required to carry more stock themselves, or to return part of the stock maintenance function to the beekeeper, which in turn could result in many producers having to hold an increasing share of their output in on-farm storage. This illustrates how changes on one end of the distribution channel can (and usually do) result in important changes in methods, facilities, and costs all the way to the other end.

Concerning the packer's shipping problem under these changes in distribution, the questionnaires show that minimum quantity shipments are becoming common, either on a case or net weight basis. About one-third of the packers who replied to the questionnaire now make minimum drop shipments, the commonest being 10 cases, or approximately 250 pounds; only 12 per cent, however, report making an additional charge for them.

¹¹ This statement is slightly at variance with the analysis of Tables 15 and 16, where the data showed a somewhat more strongly harvest-oriented pattern.

Packers' sales to independent retailers are minimal compared with their direct sales to chains (Table 20); because of the numerous marketing functions which chains perform, increasing numbers of food manufacturers are dealing with them directly as they would with brokers or wholesalers.

The growth of direct selling also stems from the fact that 20 to 25 per cent of the honey packed for the retail market is private label stock,¹² the merchandising of which calls for the setting of specifications and bidding.

In order to increase sales and spread overhead, forty-four per cent of the honey packer and dealer respondents handle other products (exclusive of bee industry products like wax and bee supplies), which account for a minimum of 50 per cent of their total sales. They often deal in companion products to honey, such as syrups, jams, jellies.

In concluding this section, it seems desirable to re-emphasize that the changes taking place in the distribution of food products today are certain to have an impact on honey marketing. In the last few years, there has been a high degree of concentration within the retail sector of

¹² Data at hand are insufficient to pin this figure down more precisely. Some respondents did not give complete information, and the volume of a number of packers whose output is known to be largely private brand pack had to be estimated.

the food industry; the number of stores and organizations has drastically declined, although sales volume has greatly increased. However, although packers now have the opportunity to move a greater volume per outlet, they also have problems related to the competition for the patronage of fewer retail buyers.¹³

The growing number of high-volume self-service supermarkets requires better control of product standards and improved container displays in order for honey to command shelf space. Modified warehouse practices at the wholesale and retail levels may also mean that warehousing functions will be shifted back to the producer. All of these changes, touched on here very lightly, call for updated information, analysis, and understanding if sound planning and investment are to be carried on either by the industry as a whole, or by individual producers or packers.

SALES PROMOTION AND ADVERTISING¹⁴

Generally speaking, beekeeper expenditures for advertising and sales promotion are apt to be minimal in the absence of any state marketing order.¹⁵ Of the total number of operators who returned questionnaires, less than 5 per cent spent over \$100 for promotional purposes. Expenditures among packers are also rather

¹³ The A. C. Nielsen Company estimates that mergers and acquisitions have reduced the number of retail chains from 273 to 77 between 1953 and 1958. See: *The Nielsen Researcher*, A. C. Nielsen Company, New York, April 1959. Other authorities reach varying estimates of the present number of chains, but the central fact is that reductions have been substantial.

¹⁴ This section is concerned with the general nature of promotion efforts in the industry, not with specifically detailed techniques.

¹⁵ California assesses 7 cents per 60-pound can on both producers and handlers for this purpose; Idaho assesses 5 cents per colony. Although other states have had marketing orders, these are the only state promotion plans currently in effect.

modest, but tend to be related to sales volume.

One of the major obstacles to more effective sales promotion is the lack of unanimity about the form which it should take. This section, therefore, is concerned not only with existing practices, but with some which might be considered in future programs.

Beekeeper Sales Promotion Practices

It is clear that when it comes to advertising and promotion, the beekeeper is primarily prepared to spend his time. Personal sales are frequently mentioned in the questionnaire responses as being of prime importance in the sales promotion activities of all categories of beekeeper operation, and the hobbyist beekeeper's sales promotion is almost entirely based on personal selling. One may suggest, however, that producers are often unaware of the cost to them of their own selling time.

A breakdown of replies from part-time and full-time beekeepers with regard to advertising and promotion expenditures appears in Table 21. Producers clearly place major emphasis on the promotional activities of the state and national associations, boards, and combined institutional organizations. Although a significant difference exists between classes in most districts, the most significant one lies in the percentage of participation in the various types of organized industry promotional efforts. The table shows that few beekeepers carry on advertising activity of their own; a few reported 1957 expenditures of approximately \$1,000. Most of the money spent went into newspaper advertising.

Despite the evidence to the contrary, beekeepers are not uninterested in advertising. Many questionnaire comments concern the need for "more advertising," and "better promotion," and suggestions are frequently made for advertising honey's "natural goodness," "healthful properties," "quick energy." Such sug-

TABLE 21
ANALYSIS OF BEEKEEPER PROMOTIONAL EFFORT, 1957

District	Part-time producers				Full-time producers			
	Participation activities*	% who advertise	Major advertising emphasis	Maximum expenditure	Participation activities*	% who advertise	Major advertising emphasis	Maximum expenditure
	% of total			1957	% of total			1957
Pacific Northwest.....	5	5	Assessments†	\$ 5	50	50	{ Assessments { Newspapers	\$ 500
California.....	100	3	C.H.A.B.†	40	100	7	C.H.A.B.	280
Arizona.....	12	..	Assessments	200	50	..	{ Assessments { Radio	N.A.
Intermountain.....	11	16	{ No predominant { medium; signs { and newspapers	250	22	33	{ Assessments { Radio	1,225
Plains.....	11	19	{ frequently cited	200	14	10	{ Signs	100
Texas.....	5	6		150	35	24	{ Assessments { Newspapers,	350
White Clover.....	18	10	Signs	200	30	9	{ Signs.	975
Southern.....	29	4	{ Assessments { Signs	150	43	22		400

SOURCE: Beekeeper questionnaire returns.
 * Includes membership in industry associations, contributions to promotional organizations, and assessments for state marketing purposes.
 † Assessments: Includes memberships, contributions, and marketing order assessments.
 ‡ California Honey Advisory Board, a promotional activity set up by the California honey marketing order.

gestions are often offered, however, by producers who give no indication that they carry on any advertising themselves, or make any contributions or pay any assessments to a promotional organization.

Many beekeepers state that the responsibility for advertising rests with the packers; others are apparently content with the status quo on promotion, are preoccupied with other phases of beekeeping, or have concluded that nothing more can be done. It is doubtful if the current total expenditure for all advertising and sales promotion by American beekeepers (excluding the value of personal time and travel) exceeds \$200,000 per year.

Although beekeepers are relatively uninformed about advertising costs, techniques, and the problems connected with promotional activity,¹⁰ the absence of a strong producer organization to support promotion is a major obstacle to more effective efforts. This weakness is not only due to incohesiveness, but also to the lack of any widespread feeling of need.

Packers

The stated policy of many packers is to spend approximately 5 per cent of sales on advertising and sales promotion. The survey returns indicate, however, that except for the largest firms, 2 to 3 per cent is more nearly representative of their normal expenditures. Packers make use of the entire range of sales promotion techniques, and spend most of their budget on cooperative promotional and other allowances, newspapers, and in-store activities, in that order. Since what the majority of packers spend results in very little promotion, consumers are little

¹⁰ It should be emphasized that beekeepers are probably much like other producers and many thousands of businessmen. The subject of advertising seems to lend itself to "expertizing" without the feeling that experience or knowledge is necessary.

touched by it. Where the advertising expense is shown to be considerably in excess of the industry level, the results appear to justify it.

Sales promotion efforts of salesmen are oriented toward presenting ideas to food brokers and wholesalers, and assisting brokers' men in store activities.

Actually, the major advertising and promotion decisions with regard to honey rest finally with retail store management, which decides between honey packers' suggestions and promotion offers and those made by packers of other food products, or of competing honey. Some food packers have attempted to minimize expensive allowances to retailers by advertising more heavily directly to consumers. When interest in a product has been created, and consumer requests stimulated, retailers are generally found to be amenable to displaying the advertised products.

Promotional Organizations

In addition to the modest promotional activities of the American Beekeeping Federation and the various state associations, there are three prominent promotion groups in the industry. These are:

- American Honey Institute; Madison, Wisconsin
- Honey Industry Council of America; Shelbyville, Tennessee
- California Honey Advisory Board; San Marino, California

American Honey Institute. The American Honey Institute is the major national honey promotion organization. It draws its income from producer contributions, producer organizations, packers, dealers, and occasionally state-sponsored promotion agencies; in 1958 this amounted to approximately \$25,000.

The Institute's promotion efforts have centered on what is characterized as the "home economics approach." Through its director, it prepares releases, recipes,

and articles for inclusion in newspapers and periodicals. Recipes, streamers, and other point-of-purchase materials are sent to packers and producers for further distribution. Campaigns directed at food editors are conducted, and plans with national food advertisers developed to feature honey in conjunction with their own products.

Considering the low budget, this is an impressive output.

Honey Industry Council of America. The Honey Industry Council of America¹⁷ was founded in 1955 in order to collect money from packers, dealers, producers, and bee supply manufacturers, for purposes of honey research and promotion. It organizes the collection of funds, and works toward achieving a unified program for its disposition.

Collection of funds is by means of a "check-off plan," whereby packers request producers to contribute 1 cent per 60-pound can to the Council fund at the time of sale, the packer then matching such contributions by an equal amount. The total contribution is receipted to the producer in the form of stamps for which the packer has paid *in advance*.

The Council makes no attempt to collect from packers or producers who already pay an assessment under a marketing order.

During 1958, the Council collected \$1,443 and made disbursements of \$2,500 to the American Honey Institute for promotion purposes. In 1959, another \$2,500 was allocated to the American Honey Institute, and \$1,200 to Kansas State University, for the preparation of a monograph to be directed at bakers and home economists.

California Honey Advisory Board. The California Honey Advisory Board

¹⁷ Representing the combined interests of the National Honey Packers and Dealers Association, American Beekeeping Federation, American Bee Breeders Association, and the Bee Industries Association.

was established under a marketing order in 1952. The Board is composed of 5 packer members (one of whom must always be a representative of a cooperative), and 5 producer members. The Board is empowered to make assessments and sponsor promotional activities and research on honey produced in California. (It also may require price posting by packers under the California Unfair Trade Practices Act.)

The California Honey Advisory Board has the largest income and budget of any of the promotion organizations in the industry. By assessing 7 cents per 60-pound can on producers, and 7 cents on packers and dealers for every 60-pound can handled for sale within the state, the Board collects approximately \$45,000 per year. Major expenditures are for promotion,¹⁸ essentially of the type carried on by the American Honey Institute, but much more intensive, since a larger budget is concentrated mainly in California. (The Board's promotion activities have some influence beyond California insofar as national advertisements of other California products feature honey as part of the illustration and copy. Recipe books have also been widely distributed by the Board.)

Where there are weaknesses in these institutional promotion programs, it is evident that they arise primarily from the industry's dispersion and incohesiveness.

There is no strong, central promotional organization, backed by funds adequate for launching campaigns which would have impact in the areas where honey consumption is low. (The author here assumes that the best areas in which to promote honey are those in which consumption is presently low. This assumption may be incorrect, and a given advertising effort might produce greater results in areas where money consumption is already high. However, the only way this

¹⁸ Several research and marketing studies have been financed by the California Honey Advisory Board.

can be determined is by actual advertising and market testing—which brings one back to the need for a means of directing efforts over wide areas of the country.)

Packers complain that institutional advertising depends too much on the “home economics approach.” On the other hand, limited funds preclude the purchase of space for more extensive programs; hence, the American Honey Institute and the California Honey Advisory Board have gotten “free” space by inducing newspapers and magazines to run articles about the use of honey.

Formation of additional promotion agencies would reduce the influence of existing ones, dissipate funds in additional overhead costs, and also possibly introduce sectional influences, which would negate the purpose of increasing consumption on a nationwide basis.

About half of the total incomes of the American Honey Institute and the California Honey Advisory Board are expended in overhead costs—manager and staff salaries, travel expenses, rent, and utilities. The funds collected by state promotional agencies tend to be spent largely for promotion within states where they are collected,¹⁹ although long-run benefits might accrue if they were spent in deficit production areas.

Thus, the creation of additional promotional agencies and the reactivation or passage of additional state marketing orders might not appreciably improve the

industry's promotion efforts, and might, in fact, only further disorganize the industry into a group of competing agencies, confusing consumers and dissipating the funds collected from beekeepers and packers, *unless* the agencies submerge local interest and allocate a large share of their funds to an effective national promotional organization.²⁰

Further Comments About Sales Promotion

Adapting subject matter to consumer needs. A recent study²¹ examined the bases on which homemakers, classified by age, education, race, and income class, make marketing decisions. Conclusions drawn from that study suggest certain approaches which might be made to the honey industry's institutional promotion efforts.

Marketing information to which there was most response was that which demonstrated how to compare prices and quality of various forms of the same product, and how to identify quality. Hoobler's study also indicated that recipes, menus, and pictures were of less interest than helpful facts about meal planning and grocery shopping. Thus, articles and other informational materials about the properties, varieties, qualities, and price of honey, might well stimulate a new market of homemakers to use it. Considering that honey is generally little used in low income households²² (a marketing group unfamiliar with many

¹⁹ For several years the California Honey Advisory Board contributed generously to the American Honey Institute for national promotion. The Board then decided to confine its funds to California.

²⁰ One way in which the state marketing order approach might work to collect funds without duplicating overhead would be for advisory boards to grant most of their promotion funds to a single promotion agency managed by a board of directors composed of the chairmen of the various state honey advisory boards. One of the major problems of the marketing order approach for honey is its widespread production. Successful marketing board activity of many specialty crops is in part dependent on production in a limited geographical area.

²¹ Hoobler, S. G., *Homemaker Values, Motivations and Knowledge of Food Buying*, Federal Extension Service, U.S.D.A., Washington, 1959.

²² See Table 22. Note that on a nationwide basis, usage in households is considerably higher in the upper income brackets. On the other hand, one notes that in the west, the second highest percentage of households using honey occurs in the very lowest income groups. The data in Table 22

foods and food facts), widely disseminated information could also result in broadening the use of the less expensive types of honey.

The relationship of price to quality was a matter of general concern. Although Hoobler's study made no attempt to determine the bases on which his respondents judged "quality," it shows that lack of information about the quality of a particular product does act as a buying barrier.

Applied to the honey industry, these findings might suggest that limited knowledge about grades, floral sources, and colors of honey, is a real obstacle to its greater acceptance; that it would be worth modifying the current heavy emphasis on menus, recipes, and certain types of cooperative advertising in the direction of straightforward marketing information; and that since newspapers and pamphlets are the most effective dissemination media, their use would yield more profitable response than point-of-sale streamers and similar devices.

Motivation research. The kind of advertising and promotion discussed above deals with the *expressed* preferences of homemakers. The unconscious factors which figure in consumer buying are often uncovered by motivational research studies, which largely use psychological techniques. Many marketing and promotion experts urge motivation research as a means to most effective marketing in general and advertising in particular.²³ Certainly advertising and moti-

vation specialists should be consulted in the development of any extensive honey promotion aimed at the household consumer.²⁴

EXPORTS

Before World War II, the United States was in some years a net importer, in others a net exporter of honey. During the war, because of the demand for sugars of all kinds, imports vastly exceeded exports. But one result of our various postwar foreign programs, the return of foreign prosperity, rising American honey production, and an export subsidy, has been to raise the honey export trade to a level never before achieved. From less than 1 per cent of the national output in 1947, exports rose to a peak of nearly 15 per cent, or 32.9 million pounds, in 1953 (See Table 24). The export subsidy program was probably the greatest influence on our honey export trade, and upon its expiration in 1954, our total export volume declined to its present level of about 20 million pounds per year, some 8 to 9 per cent of our total production.

Exports in Relation to Production Areas

Table 23 shows approximate percentages of U. S. exports from customs districts adjacent to various producing areas.

Approximately two thirds of the United States honey exports pass through Los Angeles and San Francisco Customs

do not show the absolute usage of honey in each income class since that is a function of the two elements of data shown, *plus* the number of households in each class. The information suggests, however, that special efforts should be made, geographically in the Northeast and North Central states, and economically, in the household income area between \$3,000 and \$8,000 per year.

²³ As an example of a motivation research study applied to a specialty fruit, see *Psychological Research Study on the Sales and Advertising Problems of the California Prune Advisory Board*, Institute for Research in Mass Motivations, N. Y. 1952. A recent article for laymen on psychological techniques is *How to Win or Lose Sales at the Point of Purchase*, R. N. McMurphy, Journal of Marketing, July, 1959.

²⁴ Names of consultants in motivation research whose practice is oriented to marketing can be obtained from the American Marketing Association, 27 East Monroe Street, Chicago 3, Illinois.

TABLE 22
COMPARISON OF HONEY CONSUMPTION STATISTICS IN NON-FARM HOUSEHOLDS:
MAJOR GEOGRAPHICAL REGIONS OF THE UNITED STATES*

Household classes	Percentage of households using honey					Ounces used per household per week				
	Total U. S.	North- east	North Central	South	West	Total U. S.	North- east	North Central	South	West
All households.....	7.0	4.8	7.9	6.0	12.7	.6	.5	.6	.6	1.3
1-person households.....	8.5	5.2	9.7	9.4	10.2	.5	.3	.6	.6	.5
Households of 2 or more.....	6.8	4.7	7.7	5.6	13.0	.6	.5	.6	.8	1.3
<i>Annual income per household</i>										
\$1,000-\$1,999.....	5.4	1.9	6.3	4.5	16.7	.5	.2	.6	.5	1.3
2,000- 2,999.....	5.0	2.9	8.6	2.8	16.7	.5	.3	1.0	.3	1.0
3,000- 3,999.....	6.7	5.2	4.3	7.2	10.6	.5	.6	.5	1.5	.5
4,000- 4,999.....	6.8	4.9	6.2	6.3	15.1	1.3	.2	.5	.8	4.0
5,000- 5,999.....	6.3	3.4	6.9	4.0	14.1	.6	.5	.6	.5	1.3
6,000- 7,999.....	9.3	5.7	11.6	10.3	15.3	.5	.3	1.0	.8	.8
8,000- 9,999.....	8.5	9.8	5.4	4.2	10.2	.6	.6	.3	1.0	.3
10,000 and over.....	10.9	7.5	14.9	5.6	19.0	.6	.3	.6	.3	1.1
All households—syrups.....	35.5	26.1	32.2	43.6	48.1	5.7	3.2	4.3	10.0	6.0
All households—spreads (jams, jellies, fruit butters).....	62.2	56.6	66.0	61.2	69.1	8.8	6.4	9.0	11.5	8.6

SOURCE: *Food Consumption of Households in the U.S.*; A.R.S., A.M.S., Washington.
* Data gathered during the period April-June, 1955.

TABLE 23
PERCENTAGE OF TOTAL U.S. HONEY EXPORTS
FROM REGIONAL CUSTOMS DISTRICTS
1952-1957*

(For comparative purposes only. Small quantities and offshore districts omitted.)

	1952	1953	1954	1955	1956	1957
	%	%	%	%	%	%
Far West totals.....	79	78	78	76	79	73
Gulf Coast totals†.....	14	14	11	5	5	10
East Coast totals.....	7	3	1	2	1	..
Interior white clover ports‡.....	..	5	10	17	15	17

* Source: U.S. Dept. of Commerce, Bureau of Census.

† Includes Florida.

‡ Includes St. Lawrence and Great Lakes Districts.

Districts²⁵ and almost all of this originates in California and Arizona, which exported about 45 per cent of its total production from 1952 to 1957. Since the expiration of the export subsidy, this percentage has been about 40 per cent.

Shipments from other states, notably Florida, Texas, and New York also decreased after the export subsidy program expired. On the other hand, the midwest and Pacific northwest exports rose over what they had been during the subsidy program, largely by reason of growing Canadian imports. U. S. honey exports to Canada had been less than 400 thousand pounds per year until 1954, when this increased to nearly four million pounds. The average Canadian honey export for 1954-1957 was 4.1 million pounds.

Since such a high proportion of the honey produced in California and Arizona is exported, these states are particularly concerned with export demand. Certain of the dark honeys which they produce are not always easily sold on the domestic market, but are acceptable

²⁵ Washington exports move mainly to Canada, probably taking as much as 15 per cent of that state's crop. Other exporting states are estimated at: New York, 5 per cent; Florida, 6 per cent; Texas, Idaho and Oregon, 3 per cent. Most of U. S. exports to Canada pass through Detroit Customs District, but the honey originates in Michigan, Minnesota, Wisconsin and Iowa in varying quantities from year to year.

abroad, and some western beekeepers feel that a major contribution of the export subsidy program was the encouragement of the shipment of dark honeys abroad with some satisfactory return to beekeepers. This also resulted in the related benefit of reducing the amount of dark, lower-priced honey which would go both into industrial trade and into 3- and 5-pound cans for household consumers, possibly severely depressing prices of all honey.²⁶

The Foreign Market

Ninety-three percent of our total honey exports went to West Germany, Canada and the Benelux Countries (Belgium, Holland, Luxemburg), in the period from 1955 to 1957. Switzerland has also been a consistently good customer for American honey, and although it buys less in volume, its per capita imports are nearly on a par with the bigger buyers.

The major consumer countries (Table 24), whose U. S. honey imports currently run about .2 pound per capita per year, are all hard-currency countries, highly industrialized, and with active, less-restricted foreign trade with the United States; except for Canada, they are food deficit countries.

²⁶ The only other alternative to these uses at present seems to be in various Section 32 programs through C.C.C.

Regional origins and destinations of the greatest percentage of U. S. honey exports:

COUNTRY OF DESTINATION

STATES OF ORIGIN

West Germany	California, Arizona, Florida, Oregon, Idaho, Texas
Benelux	California, Arizona, Florida, Oregon, Idaho, Texas
Switzerland	California, Arizona, Florida, Oregon, Idaho, Texas
Canada	Mainly Michigan, Iowa, Wisconsin, Minnesota, and Washington. Small amounts from other border states, California, and Florida.

Although the United Kingdom once bought most of its honey from the United States, exchange restrictions have severely limited American honey exports to those countries since World War II. The entire import allowances for the year July 1958 to June 1959 from all dollar countries was established at \$224,000, which actually represented a modest increase over 1957-1958.²⁷ It is difficult to assess the probable effects of 1959 liberalization on demand for American honey.

The German Trade

Since exports to Germany approximate 50 per cent of our total honey exports, the factors affecting this trade deserve special comment.

Although pre-depression Germany had been an important market for American honey, a series of tariff increases which raised the duty by two and one-half times its pre-depression level²⁸ put nearly all but the cheapest foreign honey beyond the reach of the German consumer. The consumption of American honey was resumed in 1948, when about 10.5 million pounds was provided by the U. S. Army's Civilian Supply Program. Currency reform, reconstruction, and the re-entry of Germany into world commerce brought about modest purchases of American

honey in 1949, 1950, and 1951. Thereafter, the 1950 honey export subsidy program was partially responsible for the great increase over pre-1952 levels; when it expired in 1954, average annual imports of American honey declined by 6 million pounds, or 40 per cent. However, the United States provided about 15 per cent of the 71 million pounds Germany imported in 1957.

In 1955, American honey accounted for 24 per cent of Germany's total honey imports; in 1956, 13 per cent. This fluctuation results partly from the fact that German importers buy honey in a competitive market comprised of a number of countries, and partly from the fact that, until January, 1960, there was distribution control by import tenders. This practice of control originated in August, 1957, in order to liberalize trade in honey.²⁹ Before then, American honey was purchased with dollars which had to be acquired at a premium of about 16 per cent by German importers. The tender system apparently worked to the benefit of American exporters.

Since much American honey is used for blending with stronger-flavored products of lower cost, it can be sold at a slightly higher price over competing honeys.

Grades accepted in the German trade

²⁷ *Foreign Commerce Weekly*, July 28, 1958, p. 9.

²⁸ From 4½¢/lb. in 1930 to 10.8¢/lb. in 1933. As of 1959, there is no German import duty, but an "equalization tax" of 4%, ad valorem.

²⁹ The system essentially provided for the apportionment of the periodic quotas on "nonliberalized" commodities. Importers' requests were matched against announced quotas, and scaled down proportionately whenever the total of requests for a specific commodity exceeded the quota for it. As of January, 1960, honey was placed on the "liberalized" list, and no quantitative restrictions now apply.

TABLE 24
U. S. EXPORT HONEY VOLUME TO MAJOR CONSUMING COUNTRIES
1952-1958
(000 Lbs.)

Country	1952		1953		1954		1955		1956		1957		1958	
	Weight 000 lb	Total %	Weight 000 lb	Total %	Weight 000 lb	Total %	Weight 000 lb	Total %	Weight 000 lb	Total %	Weight 000 lb	Total %	Weight 000 lb	Total %
West Germany.....	12,311	53	20,664	63	13,680	56	10,115	50	7,702	43	10,990	56	13,800	62
Canada.....	53	..	359	1	3,909	16	5,085	25	3,280	18	4,251	21	4,700	21
Benelux.....	6,016	26	9,211	28	4,519	19	3,564	17	4,459	24	2,928*	15	2,500	11
Switzerland.....	1,285	6	616	2	717	3	820	4	979	5	744	4	300	1
All others.....	3,512	15	2,000	6	1,455	6	901	4	1,820	10	886	4	1,100	5
TOTAL.....	23,177	100	32,850	100	24,280	100	20,485	100	18,240	100	19,799	100	22,400	100
Per cent national production..	8.5		14.7		11.2		8.0		8.5		8.1		8.5	

SOURCE: U. S. Dept. of Commerce.

* Quantitative import restrictions removed by Netherlands and Belgium in 1957.

vary from white to light amber. Fortunately for American producers, Germans have generally preferred a somewhat darker honey than do Americans. For this reason, the predominant volume of export honey is extra light amber or light amber.

There are evidently distinct preferences for lighter grades north of the Main River and for the darker ones in southern Germany. American orange, sage, and clover honey are highly regarded.³⁰ Alfalfa honey from the Imperial Valley and Arizona is of a color and flavor which Germans find pleasant, but its diastase content calls for consideration.

The diastase problem. German food regulations require that imported honeys contain a certain minimum diastase level as evidence that the product has not been overheated. Diastase, together with invertase, acts as a catalyst in the conversion of sucrose and other polysaccharides into levulose and dextrose. The action of these enzymes continues slowly after the honey has been fully ripened and extracted, unless destroyed by excessive heat. Thus, the diastase level in honey is thought to be a clue to the degree of heating or adulteration, although it has been

shown from time to time that certain honeys, even in the comb, are practically devoid of diastase when fully ripened. It has also been claimed that the diastase level is a guide to "other dietetic and nutritive quality," and a German food regulation, promulgated in 1930, precludes the use of honey in which diastase is weakened or destroyed, or which is burnt or caramelized, except for baking. This takes on special significance in light of the fact that 80 to 85 per cent of imported honey is bought for table use.³¹

Unfortunately for American exporters, acceptable diastase levels are a matter of interpretation by German inspectors,³² and German regulations set no absolute minimum for diastase value, but evaluate it along with other factors in determining the acceptability of individual shipments.

Some American exporters accept these German regulations as efforts made in good faith to maintain high nutritional standards, and say that (1) Germans genuinely believe the nutritional and bactericidal qualities of honey are ruined by too much heat, even if the honey does not caramelize, and that (2) German honey is to be submitted to the same

³⁰ Samples of United States honey were given visitors to the American exhibit at the International Food Fair in Munich, September 1958. Representatives report that there were more inquiries about American honey than any other product shown. Also, a later survey revealed that more space was devoted in West German newspapers to honey releases than to those of any other product. It is clear that exporters are not exploiting the growing interest of German consumers in 100 per cent American honey in various grades; a modest demand already exists for American bottled honey in Scandinavia and other parts of the world. As long as American honey is blended in "import ware," our producers and exporters will not reap the full benefits of the growing discrimination of German consumers in favor of high quality foods of all kinds. Since regulations do not permit importation of U. S. honey into Germany in retail packages, the best current approach might be to encourage German importers to blend and pack U. S. honey for labelling and sale as such.

³¹ Estimate provided by Paul F. Taggart, Asst. Agricultural Attaché, Bonn, West Germany.

³² As an example of the confusion which exists, an American official states: "A minimum limit of 8.3 units of diastase value was once satisfactory. Later it was declared that 10.9 diastase value was definitely overheated, and a level of 17.9 diastase value is suspicious. In 1953 (biggest export year in the history of our German trade), there was no official method for diastase determination in Germany."

On the other hand, the U. S. Dept. of Agriculture now uses the Gothe method of quantitative evaluation of diastase levels. Lots are rated by "low" (less than 10.9 diastase value); and "high" (29.4 diastase value and over). These values represent the number of milliliters of 1 per cent starch solution converted by the diastase in 1 gram of honey.

regulations in 1960, under new food laws of 1958.

Other American exporters claim, however, that (1) in years of short supply, German importers never raise the question of diastase, and that (2) in other years, shipments are frequently rejected for table honey on arrival, and made subject to re-negotiation at a lower price.

Correspondence with experts in the field reveals that influential German food chemists are now advocating the testing for invertase, saccharase, inhibine, and hydroxyl methyl furfural. The question which arises is how lighter, milder honeys, characteristically low in diastase value, but increasingly in demand in Germany, are to pass the regulations. The introduction and strict application of new German regulations could render large quantities of American honey unacceptable, even when certified by the U.S.D.A. by existing testing methods.

In 1958 numerous exporters asserted that German importers in general regarded Imperial Valley honey as a naturally overheated honey. This problem of overheating is, however, not limited to honey from this area, but exists wherever summer temperatures frequently exceed 100°, and opportunity exists for prolonged heat exposure during storage, in transit by truck, and at dockside.

The building of heat-resistant or heat reflecting warehouses for on-farm storage is a logical first step if beekeepers in areas of extremely high summer temperatures are to minimize this kind of overheating.³³ Ways and means of moving honey without undue heat exposure between farm and shipboard remain to be worked out.

³³ The statistics on recently built low-cost, on-farm cold storage fruit warehouses in Yakima Valley, Washington, might have pertinence here. Including refrigeration unit, and depending on size, and amount of work done by the farmer himself, cost of these structures varied from \$1.00 to \$1.75 per sq. ft.

If it could be demonstrated that color and diastase content change significantly when storage temperature rises above a given level, moderate cooling might be an economical answer to the problem.

³⁴ Note differences of opinion between European and American buyers re Cuban honey. See "Imports."

Competing Countries

American honey in European markets must not only compete on its merits, but against restrictions on dollar trade and the needs of less fortunate nations to acquire credits in Europe. Cuba, Guatemala, Jamaica, Mexico, Australia, New Zealand, Chile and Argentina are important exporting countries, and in the last few years Red China exported an appreciable quantity of honey which, although originally of variable quality, is expected to improve. (German importers are reported to be wary about accepting substantial lots from Red China as a result of earlier experiences.)

Most important competing nations in the German market are:

- Argentina: Nineteen per cent of total imports in 1957 with high quality, very light honey (white) used mostly for blending. Lower freight rates give Argentinian honey a landed cost advantage over the United States.
- Mexico: Second in volume, 1957, with nearly 19 per cent of total imports; darker grades considered closest in quality to California honey. Landed prices are lower than those from United States.
- Australia: Fourth, behind U. S. in volume 1957, with 11 per cent of total imports. Quality said to be low and must come on the market at low prices to be attractive.
- Cuba and Guatemala also provide a substantial volume of good quality honey,³⁴ with Guatemala a top quality source of honey in drums.

TABLE 25
MAJOR FOREIGN SUPPLIERS OF
GERMAN HONEY IMPORTS, 1956-1957
(Millions of Pounds)

Country of origin	1956	1957
Argentina.....	7.5	13.5
Mexico.....	8.1	13.2
United States.....	7.5	10.4
Australia.....	8.4	7.7
Cuba.....	6.1	5.2
Red China.....	6.4	3.8
Chile.....	4.5	3.5
Guatemala.....	1.3	3.2
Other.....	9.2	10.2
Total imports.....	59.0	70.7

SOURCE: Der Aussenhandel der Bundesrepublik Deutschland, Federal Statistics Office, Bonn, West Germany; Part II, December 1956, 1957.
Courtesy: Foreign Agricultural Service, Agricultural Attaché, U.S. Embassy, Bonn.

TABLE 26
COMPARISON OF LANDED PRICES AT BREMEN, GERMANY*
FOR IMPORTED HONEY
(Cents Per Pound)

	1957						1958
	Apr.	May	July	Aug.	Oct.	Dec.	Feb.
<i>United States:</i>							
light to extra light.....	31.33	31.08	30.08	31.08	31.58	30.08	28.58
extra light.....	31.83	31.58	30.73	31.58	32.08	31.08	29.00
<i>Argentina:</i>							
white.....	29.92	28.92	30.17	31.42	28.92	29.92	29.42
<i>Mexico, Yucatan:</i>							
light amber.....	28.98	29.48	28.98	28.98	26.98	27.98	27.48
<i>Mexico, West:</i>							
extra light.....	31.60	30.10	30.10	30.10	30.10	30.35	31.35
<i>Australia:</i>							
light amber (-1% for insurance)	28.11	28.11	29.19	29.19	25.92	25.65	26.18
<i>China:</i>							
light amber.....	28.94	28.94	29.76	28.94	27.01	24.80	23.98
extra light.....	30.31	30.31	31.14	30.31	28.39	26.18	25.63
<i>Cuba:</i>							
extra light.....	29.25	29.25	29.25	29.25	27.75	26.75	25.75
<i>Chile:</i>							
very light.....	32.06	32.06	30.56	30.56	27.06	25.56	23.81
<i>Guatemala:</i>							
extra light to light.....	30.43	30.43	29.93	29.93	30.43	30.93	31.93

SOURCE: American Consul General, Bremen, through Foreign Agricultural Service.
* Includes cost of honey plus freight.

Note that there is a slight difference between U. S. total exports as shown in U. S. and German reports.

Table 26, which shows a comparison of landed prices at Bremen for various grades of U. S. and competing honeys

between April 1957 and February 1958, should be used only as an approximation of competitive prices, since shifting prices and freight arrangements occasionally result in wide price variations from purchase to purchase.

TABLE 27
EXPORT SUBSIDY PROGRAM, 1950-1954
(Crop Years)

Crop year	Quantity exported	Amount of subsidy	Per cent of annual prodn.*	Cost of program	Remarks
	<i>000 lbs.</i>	<i>per lb.</i>		<i>\$000</i>	
1950.....	12,581	4½¢	5.4	566	
1951.....	14,176	4½¢	5.5	638	
1952.....	28,414	4½¢	10.4	1,279	
1953.....	24,110	4.0/3.6¢	10.8	931	{ Subsidy changed Sept. 25. Program terminated Oct. 17. 41-day program ending Aug. 30.
1954.....	21,858	2½¢	10.1	546	
Totals.....	101,139		8.7	\$3,960	

SOURCE: Commodity Stabilization Service and Agricultural Marketing Service.

* Based on calendar year production, not crop year.

The Export Subsidy Program

In certain years after World War II, exports of honey were materially affected by government action. During 1948, 10.5 million pounds were exported for the U. S. Army for foreign feeding under provisions of the Interim Aid Act of 1947.³⁵ Commencing with the crop year of 1950, an export subsidy program³⁶ was instituted which encouraged exports of more than 100 million pounds of honey over the next five crop years.

Over the span of five crop years, the export subsidy program applied to about 9 per cent of total production. In terms of money, \$3 million out of the \$4 million program payments went to the industry in the far west, mainly California and Arizona, although there were certain benefits which accrued to the entire industry.

There is no way to calculate the additional tonnage exported as a result of the spur provided by the subsidy, since exports prior to the program were practically nonexistent except for the Army

³⁵ Arrangements under this program required packers to pay producers 10 cents per pound delivered. The export subsidy was paid directly to export dealers, with indirect benefits to producers.

³⁶ Under Clause (1) of Section 32 of the Act of August 24, 1935.

feedings, and those since the program have averaged 20.2 million pounds per year (through 1958).

The diversion of this incremental volume from the domestic market:

- Protected domestic price levels from excessive stocks overhanging the market.
- Protected consumer pack quality through removal of large amounts of darker honey.
- Disposed of excess production through normal commercial channels.
- Limited the government's program cost to the amount of subsidy (see below).
- Redeveloped rapidly a honey export trade which had not existed for 20 years.
- Obviated the need for removing it from the domestic market under the mandatory support program, which would have cost the taxpayers 15 to 16 cents per pound (including assembly and packing costs), as against the 4½ cents or less per pound which this cost in later years.

The 1958 Export Situation

Analysis of the export situation which arose in the western part of the United

States in 1958, might demonstrate how confusion and discouragement tend to result from the honey industry's failure to disseminate and evaluate pertinent information.

In 1958, California and Arizona's increased honey production was well in excess of the national increase over 1957. Since it was apparent early in the season that California would have a heavy crop, and many exporters were at the same time publicly asserting that German market demand had declined, the marketing behavior of both producers and middlemen was strongly colored by a sense of tremendous surplus at hand.

As a result, producers yielded to psychological pressure and sold early, thereby quickly weakening producer prices.³⁷ They evidently overlooked the fact that a large part of the increased production was sage-wild buckwheat,³⁸ a high percentage of which went into packer storage. (There were, of course, increases in other types, including alfalfa, the main export honey.)

As it turned out, the actual quantity exported in 1958 was 22.4 million pounds, about 13 per cent more than 1957. And the German market, which exporters had thought to be curtailed, actually took 14 million pounds, 36 per cent over 1957. With the Canadian market also consistently good in 1958, California-Arizona total exports were 20 per cent greater than they had been in 1956 and 1957. How can the disparity between fact and impression be explained?

There is no evidence to show that an attempt was made by middlemen to exploit a heavy demand situation and force producer prices down. Such bargaining tactics are a possibility if producers are uninformed about the volume moving

³⁷ The published price policy of one exporter as early as May, 1958, placed his offering prices barely above support levels.

³⁸ Sage-wild buckwheat honey is one of the premium regional types; its export is limited compared with other varieties.

into export channels, but foreign buyers were probably as aware of the supply situation as domestic dealers, who would then come under bargaining pressure themselves.

It was noted in Chapter I that firms move in and out of honey handling as opportunity arises or wanes, especially in import-export activities. It was thought for a time that the growing German demand had attracted new entrants who, in by-passing established handlers of honey there, gave exporters here the impression that no change had occurred in demand. Investigation revealed, however, that no substantial amount of export honey was moved by exporters other than those well established in the trade.

The confusion can probably be accounted for by two factors:

- The psychological effect of rising supplies, foreign competition, and the recession, made exporters susceptible to the suggestion that foreign demand was poor.
- Exporters were generally receiving a greater number of small-volume orders from abroad, which evidently misled them into believing that demand was off. One cooperating exporter, on analyzing his orders, discovered that his total 1958 shipments had been almost precisely the same as 1957, but that he had had to fill 40 per cent more orders. Another reported appreciably higher volume over 1957, but also reported considerably more individual orders. It might seem inconceivable to those accustomed to the precise control reports which are common in business today that managers would have so little accurate knowledge of the course of their own business.

This account illustrates why producers and even some dealers have to analyze not only their own operations, but also

TABLE 28
UNITED STATES HONEY IMPORTS, 1938-1958

Year	Total imported*	Percent of indicated U.S. consumption
	<i>million lbs.</i>	
1938.....	2.4	11
1939.....	2.6	14
1940.....	2.7	13
1941.....	5.1	22
1942.....	20.2	10
1943.....	38.2	17
1944.....	20.9	11
1945.....	25.1	10
1946.....	19.9	8
1947.....	20.3	11
1948.....	9.3	5
1949.....	9.7	4
1950.....	12.3	5
1951.....	8.2	3
1952.....	8.5	3
1953.....	9.8	4
1954.....	9.2	4
1955.....	9.9	4
1956.....	4.8	2
1957.....	4.8	2
1958.....	3.9	2

SOURCE: Estimates of Fruit and Vegetable Division, A. M. S., U. S. D. A., compared with actual import data provided by the U. S. Department of Commerce.

* For consumption: Includes Puerto Rico and Hawaii. Small quantities enter for trans-shipment abroad, but this was less than 100,000 pounds in 1958.

the market in general, in order to improve bargaining effectiveness. Figure 2 shows the pronounced seasonal pattern of honey exports which prevailed through 1954-1958; the 1958 curve shows that shipments in February, June, July, and August were higher than "normal." In exporting areas such charts are helpful in keeping abreast of movements and underlying demand. Records of shipments are available in Department of Commerce tabulations 45 to 60 days after the end of a given month and later in the Honey Market News. Producer and dealer organizations could arrange to take the data off the records at the nearest Department of Commerce Library for distribution to interested persons. The information gap which places producers at a bargaining disadvantage would thus be narrowed.

It would also be helpful if export (and import) data could be prepared and displayed by a government agency with

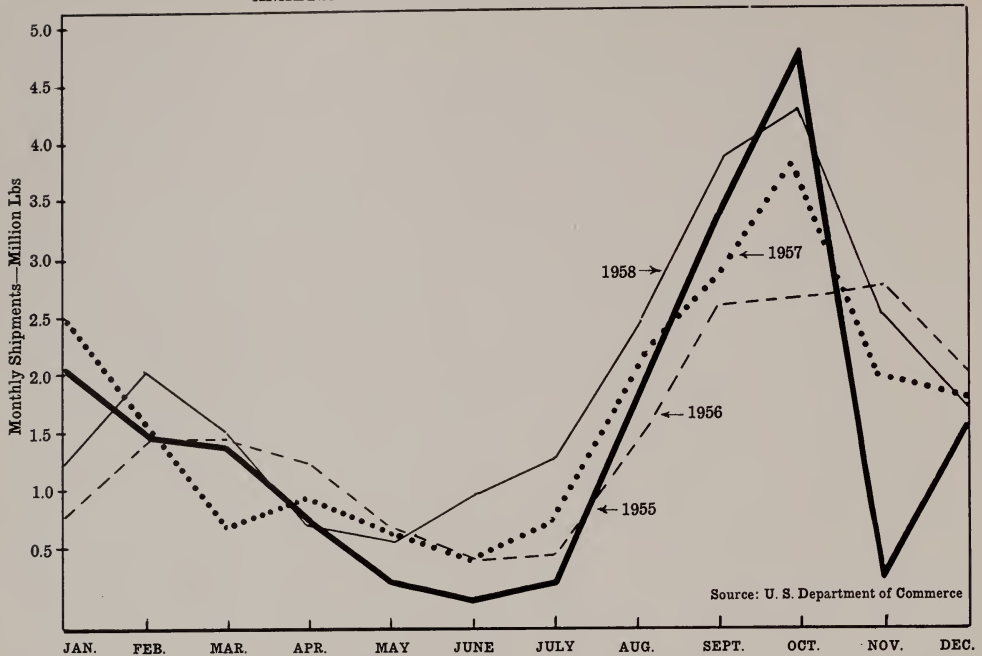
each month's report on a year-to-date cumulative basis for both the current and preceding years.

IMPORTS

Except during World War II, imports of honey have been generally minor, and where they figure at all, mainly in metropolitan New York and Philadelphia, they fluctuate widely from year to year depending on national supply and the world market.

During World War II, imported honey, together with domestic honey, was an important substitute for cane and beet sugars. In 1943 imported honey was equal to 20 per cent of domestic production, or nearly 17 per cent of domestic consumption as indicated in Table 28. From 1942-1945, imports averaged 14 per cent of the total domestic consumption of honey; thereafter, they declined rapidly. In the past decade, only in 1950

FIGURE 2
ANALYSIS OF MONTHLY EXPORT VOLUME 1955-1958



have there been imports in excess of 10 million pounds. From 1948-1955, average yearly importation was 9.4 million pounds; in 1956-1957 only 4.8 million pounds per year; in 1958 an even lower 3.9 million pounds.

Stabilization of import volume in today's market will probably be at 4 to 5 million pounds per annum, a quantity approximately equal to 2 per cent of national honey consumption.

New York and Philadelphia receive 65 to 75 per cent of all imported honey; New Orleans 20 to 25 per cent; other eastern and Canadian border points, the remainder.

Generally speaking, use of imported honey is restricted almost entirely to the area contiguous to the port of entry.³⁹ Inland processors take an occasional shipment only when an attractive net delivered price is established by some par-

³⁹ Comments in this section are based on interviews with importers and processors in the midwest and northeast.

ticular deal. Then, trans-shipments by river are made out of New Orleans to St. Louis and Cincinnati. Truck shipments to final consumers sometimes are made from New York and Philadelphia to points as far inland as Detroit and Chicago, but such trade is highly unusual.

Imported honey is almost entirely of industrial grade (light amber and darker), and used almost entirely in the baking industry.⁴⁰

Foreign honey is, for the most part, already processed (that is, pasteurized, strained and/or filtered), at the time of receipt, since most of it is destined for direct sale to industrial users. When packers order foreign honey for blending or for their own processed baking

⁴⁰ One importer estimates that 1 million pounds of imported honey is used for bottled blends in the New York metropolitan area, but this certainly seems high in the light of responses from other importers, which indicate almost exclusive sales to industrial users.

honey, foreign processing is unnecessary, although Mexican and Guatemalan honeys are invariably treated before shipment in any case. Purchases are made on the basis of previously submitted samples, although in rare instances Latin American honey comes in on consignment.

Import Organizations

The mass of import volume is handled by four companies whose status in the industry is widely recognized, although small quantities are handled on an occasional basis by many import-export firms. Most importers in the field are referred to as brokers, but in recent years they have functioned as dealers because the tendency has been to buy for their own account, either as particular requests are received from domestic consumers, or for storage in the port area, if prices in Latin America, our major foreign honey source, are attractive. The large firms also have active selling contacts in Europe and thus act as dealers in both American and Latin American honey abroad. In 1958, one dealer handled at least 50 per cent of the total American imports on the Atlantic and Gulf ports.⁴¹

Sources of Foreign Production

Mexico, Guatemala, Cuba, and Canada are our prime foreign honey sources, and Puerto Rico, the Dominican Republic, and Europe, our lesser ones. European honey is confined primarily to case lots, whereas all other sources provide bulk honey in drums or cans. Mexico's provision of approximately two-thirds of our import volume almost shrinks the imports from other countries into insignificance (See Table 29).

Mexican honey. Mexican honey is produced mainly in the provinces of Yucatan, Jalisco, and Morelos. Yucatan

honey is most commonly used in the United States, Morelos and Jalisco honey in Europe. Main shipping ports are Progreso, Tampico, and Vera Cruz.

Main floral sources are the Aztec-named tahonal, tzedilche, acahual, chayotillo, guamuchil, and mesquite plants, which yield honey of excellent quality and flavor. Production in both Mexico and Guatemala is limited to areas which bees can reach from roadside apiaries. Since Mexican and Guatemalan road systems are relatively undeveloped, so are their floral sources. On the other hand, it is claimed that the largest single beekeeping operation in the world is in Mexico, running to 12,000 colonies of bees and producing 2.5 million pounds of honey per year.⁴²

The Mexican honey industry is said to be skilled and well organized. However, early in 1959 the formal organization of honey firms in Mexico which dominated export operations was dissolved, and there is reason to expect a period of instability which may affect the American industry; both import and export prices may drop—more likely the latter.

Cuban honey. Cuban honey is said by American buyers to be of unreliable quality, although until 1957 Cuba had been our second most important honey source. Cuban imports were drastically curtailed in 1956 and 1957; in 1958, they amounted to less than 100 drums.

The Import Duty Question

In years when a substantial production surplus occurs, there are frequently demands within the industry for an increase in import duty. There is currently a duty of 1 cent per pound; three cents per pound on imports from Communist bloc countries. The argument usually advanced by proponents of a higher import duty is that foreign labor is so much

⁴¹ Tabulations from the *Journal of Commerce Import Daily*, New York, N.Y.

⁴² See Willson, R. B., *Meet the Champions, Miel Carlotta!* Gleanings in Bee Culture, Vol. 33, Nos. 6, 7, 8, June, July, August, 1955. A. I. Root, Medina, Ohio.

Table 29
U. S. IMPORTS OF FOREIGN HONEY, 1953-1957
(Million pounds)

Country of Origin	1953	1954	1955	1956	1957	5-year average % of total imports
Mexico.....	5.0	5.6	6.4	3.2	3.7	62
Canada.....	.5	.2	*	.1	*	3
Cuba.....	2.0	1.7	2.0	.6	.2	17
Guatemala.....	1.5	1.2	1.3	.6	.7	14
All other.....	.8	.5	.2	.3	.2	4
Total imports.....	9.8	9.2	9.9	4.8	4.8	100

SOURCE: Dept. of Commerce, Bureau of the Census.
* Less than 100,000 lbs.

lower in cost than American labor that American honey cannot compete on a cost basis with foreign honey.⁴³ The fact is, however, that American honey does compete successfully on a cost and quality basis in the export market when it is not insulated from competition by artificial restrictions.

Foreign competition on the domestic market is limited almost entirely to the demand for bulk industrial honey in the New York-Philadelphia metropolitan areas and New Orleans. Even here, however, there is competition from domestic producers in California, Florida, and other states. In 1957, for example, intercoastal shipments of honey from California to the northeast were about 2.2 million pounds.⁴⁴ It is likely that at least as much domestic as imported industrial honey was used in the northeast in 1957.

The decline in imports is a manifestation of our higher domestic production and resulting lower prices, and of the increasingly attractive markets for foreign honey in Europe. Honey dealers and importers in the northeast uniformly report that in early 1959, their foreign suppliers were seldom able to provide honey at landed prices as favorable as domestic sources. It is the dealers who express concern that higher import duties may increase Mexican and Guatemalan competition in our export markets, and also bring about retaliatory action against American food exports.⁴⁵

Increased import restrictions are difficult to justify unless they result from a Federal honey marketing order.⁴⁶ The chance of a need for higher honey tariffs or quotas, however, is remote.

⁴³ For example, testimony in Hearings of the Committee on Agriculture, House of Representatives, 81st Congress on H.R. 1768, H.R. 2883, April 27, 1949 (p. 63). Also statements before the Resolutions Committee, California State Beekeeper Assn., Long Beach, December, 1958.

⁴⁴ Total tonnage carried by Luckenbach Steamship Lines originating in San Francisco and Los Angeles, consigned to northeastern ports. Other lines serving California report insignificant or no honey movements. U. S. Army Engineer data on intercoastal shipments are unusable for purposes of this study.

⁴⁵ Almost without exception exporters recall that foreign retaliation follows within a short time after increases in duties. This would therefore jeopardize American food exports of a wide variety of items, which amounted to \$77 million to Mexico and \$8.5 million to Guatemala, from July 1, 1956 to June 30, 1957.

⁴⁶ As provided in Sec. 22, Public Law 320 (74th Congress, August 24, 1935) which permits the President to impose import quotas or duties on any products which adversely affect programs of the Dept. of Agriculture. This section has been applied sparingly. Since a marketing order would apply to the surplus production areas of the country on such matters as volume control, some import restrictions might become necessary.

TABLE 30
APPROXIMATE RENTAL RATES FOR POLLINATION—1958
VARIOUS AREAS IN THE UNITED STATES

District or area	Crop	Length of period	Rental/colony	Remarks
		<i>weeks</i>		
Calif.-Arizona.....	Orchards	6-12	To \$5.00	
	Cantaloupes } Cucumbers }	4-18	\$3.00- 5.00	
	Legumes	6-14	1.50- 5.50	
	Cotton		To 5.00	
Pacific Northwest.....	Orchards	5- 8	5.50- 8.00	
	Legumes	5-10	1.00- 5.00	
Intermountain.....	Orchards.....	4	5.00- 6.00	{ Odd amounts subject to negotiation. { Few rentals in Utah, Idaho, Colo., and New Mexico.
	Legumes	8	1.00- 2.50	
	Cantaloupes } Cucumbers }	7- 9	2.50-up	
Plains (mainly Iowa).....	Clover	8-10	To 5.00	
	Orchards	2- 3	3.00- 5.00	
Texas.....	Cantaloupes } Cucumbers }	4- 7	To 5.00	
	Vetch	8-10	1.00-up	
Western White Clover Belt..... (west of Penna.)	Orchards	3- 4	5.00- 7.00	
	Cucumbers	4-10	To 10.00	
	Cranberries	....	To 10.00	(Wisconsin)
	Clover	8	5.00- 6.00	
Eastern White Clover Belt..... (Penna. east)	Orchards	2- 3	5.00-10.00	
	Blueberries	....	5.00-10.00	
	Cranberries	....	6.00-up	
	Cantaloupes } Cucumbers }	....	To 9.00	
	Lima Beans	....	4.00-up	
	Clover	8	3.00-up	
Southern.....	Orchards	1- 2	5.00- 7.50	
	Clover	8	3.00- 5.00	
	Cantaloupes } Cucumbers }	20-25	5.00-10.00	

SOURCE: Questionnaire returns of beekeepers, and comments of apiary officials of 47 states.

POLLINATING SERVICES

There has been increasing acceptance of the fact that an investment in bee rental for pollination will pay for itself in improved crop yields. There are now generally accepted "going rates" for pollination services in 33 states, and an observable trend toward more use of rental bees in 20 states.⁴⁷

⁴⁷ Data were provided by apiary inspectors, extension apiarists of 47 states, and beekeeper questionnaires.

⁴⁸ Hearings on H.R. 1768 and H.R. 2883, Committee on Agriculture, 81st Congress, April 27, 1949.

The importance of pollination services was recognized by Congress in its consideration of a program of crop loans and other price support activities on honey.⁴⁸ Much of the testimony in the hearings on this program concerned the need for support in order to maintain the pollination function.

Pollination rentals fall into patterns from area to area (Table 30). Note that

TABLE 31

SIGNIFICANCE OF POLLINATION AS A SOURCE OF BEEKEEPER INCOME

District	Part-time producers		Full-time producers	
	Per cent receiving pollination income	Per cent of income derived from pollination	Per cent receiving pollination income	Per cent of income derived from pollination
Pacific Northwest.....	30	8	95	29
California.....	22	7	59	32
Arizona.....	0	0	18	Insignificant
Intermountain.....	2	0	25	Insignificant
Plains.....	3	0	12	Insignificant
Texas.....	6	Insignificant	38	10
White Clover {East.....	29	12	45	7
{West.....	7	Insignificant	5	0
Southern.....	11	Insignificant	17	1

SOURCE: Beekeeper questionnaire returns.

the length of rental period varies widely from crop to crop.

Although there is undoubtedly wider recognition of a need for commercial pollination services, data gathered from beekeepers indicate that in many parts of the country it will be some time before pollination rentals account for any substantial portion of beekeepers' incomes. Table 31 shows the significance of rental income in various honey districts.

One must conclude that although numerous beekeepers receive income from pollination services in the far west, Texas, and the northeast, this is not an important share of total income except in California and the Pacific northwest.

If pollination services are to be promoted on a more businesslike basis, it will be necessary to develop a program of the following kind:

- Articles describing experimental results on location, and the number of colonies required per acre for

various crops, should be submitted to leading farm journals,⁴⁰ in order to develop uniform standards of service. This would not only publicize the pollination function, but would also give farmers a basis for estimating their needs for rented bees.

- Advertising should be done in local media, referring farmers to extension representatives or other sources where they could consult lists of beekeepers with available colonies. The details of this approach could be worked out by the state associations.
- Current rental rates should be reported as scrupulously as honey prices themselves.
- More precise data should be made available to producers on how to maximize income while engaging in both honey production and pollination operations.

⁴⁰ As an example, an excellent study, Girardeau, J. H., Jr., *Mutual Value of Crimson Clover and Honey Bees for Seed and Honey Production in South Georgia*. Georgia Agric. Exp. Sta., Dec. 1953, described experimental management practices for planter and beekeepers which produce benefits for both types of operations. See also: Filmer, R. S., and Doehlert, C. A., *Use of Honeybees in Cranberry Bogs*, New Jersey Agricultural Experiment Station, New Brunswick, 1959.

IV. FEDERAL PROGRAMS

THE HONEY INDUSTRY has been aided by a number of Federal programs designed to support prices in the following ways:

- Crop loans at support prices, which provide working capital while crop is in storage.
- Purchase agreements at support prices, which assure that a market will exist for all qualifying grades. (The practical difference between a crop loan and a purchase agreement is that in the latter arrangement the producer does not receive funds immediately.)
- Surplus removal by outright purchase.
- Diversion of excess production, and of types of honey for which there is low demand, into export or unusual uses.
- Maintenance of a research staff to investigate new or improved uses of honey.

THE CROP LOAN AND PURCHASE AGREEMENT PROGRAM

Government price supports constitute a continuing program of major importance to beekeepers. The crop loan and purchase agreement program for honey was included under provisions of the Agricultural Act of 1949;¹ it was given mandatory support between 60 and 90 per cent of parity at the discretion of

the Secretary of Agriculture. In applying this program the Secretary must consider:²

- Supply of the commodity in relation to the demand.
- Price levels at which other commodities are supported.
- Availability of funds.
- Perishability of the commodity.
- Importance of the commodity to agriculture and the national economy.
- Ability to dispose of stocks acquired through price support operations.
- Need for offsetting temporary losses of export markets.
- Ability and willingness of producers to keep supply in line with demand.

Under the provisions of the Act of 1949, honey was supported at the Secretary's discretion by outright purchase during the crop years of 1950 and 1951 at 60 per cent of parity. Beginning with the 1952 crop year, a program of loans and purchase agreements was instituted based on 70 per cent of parity, and was continued at that rate until the beginning of the 1959 crop year, when the support level was reduced to 60 per cent.

From Table 32 it can be seen that a very modest portion of the total national output has come directly under the support program. From 1952 through 1957, less than 2 per cent of any crop was di-

²Agricultural Act of 1949, Sec. 401 (b).

See also: *Price Support Handbook*, Commodity Stabilization Service, U.S.D.A., Washington, 1955.

¹Agricultural Act of 1949, Sec. 201 (b). Outright purchase used in 1950 and 1951.

TABLE 32
HONEY PRICE SUPPORT OPERATIONS, 1950-1958

Crop year	Amount under Loan*	Amount under purch. agr.*	Total support*	Deliveries to C.C.C.*	Support rate and prices†			Percentage of national production under support‡
					Percent of parity	Cents Per lb.		
						East	West	
	000 lb	000 lb	000 lb				(White Table Grade)	
1950.....	{	Outright purchases used to support prices Quantities shown under Deliveries to CCC	{	{	60	.....	9.0	3.2
1951.....						.....	9.9	6.9
1952.....						.....	11.58	5.4
1953.....						.....	10.58	1.7
1954.....						.....	10.4	1.0
1955.....						.....	10.1	.8
1956.....						.....	9.9	.8
1957.....						.....	9.9	1.7
1958.....						.....	9.8	6.6
1959.....						.....	8.7	....

SOURCES AND OTHER DATA:

* Sugar Division Commodity Stabilization Service.

† Announcements of program, *Honey Market News*. The support rate for white table honey in 1950-1951 was based on the container size. Grades for support purposes are described in the Appendix.

‡ Based on comparison of program total with calendar year production.

§ East-West differential changed from .75 cents/lb. in 1952 to .9 cents/lb. in 1953.

TABLE 33
DISTRIBUTION OF TOTAL POUNDS UNDER SUPPORT;
BY HONEY DISTRICTS OF THE UNITED STATES:
1950-1958

District	1950	1951	1952	1953	1954	1955	1956	1957	1958
	%	%	%	%	%	%	%	%	%
California-Arizona.....	50	56	33	9	16	34	54	43	46
Pacific Northwest.....	..	..	4	6	4	8	..	6	3
Intermountain.....	13	25	28	28	10	9	8	16	8
Texas.....	22	8	5	11	6	..	..	..	1
Plains.....	6	7	17	26	11	28	22	18	21
White Clover*.....	6	3	7	14	9	13	2	7	15
Southern.....	3	1	6	6	44	8	14	10	6
	100	100	100	100	100	100	100	100	100

SOURCE: Annual releases of honey price support data: Fruit & Vegetable Branch, A.M.S., U.S. Dept. of Agriculture.

* Practically all support was in states west of Pennsylvania.

rectly involved, and deliveries to C.C.C. were insignificant or nonexistent. The largest proportion of any crop to come under support was in 1958, when about 6.6 per cent was put into the program. Deliveries to C.C.C. amounted to .8 per cent of the total 1958 crop.

Table 33 shows how the program was utilized in the various honey districts on the basis of distribution of the total physical volume purchased, or under loan or purchase agreement.

The percentage distribution of support among the various districts fluctuates from season to season (Table 33). There is no relationship between use of the program for loans and the volume delivered to C.C.C.; percentages of totals delivered in various districts do not coincide with percentages of total under support. In 1952, for example, 28 per cent of the support went to the Intermountain District, but 46 per cent of the deliveries were made there. And 46 per cent of the support went to California-Arizona in 1958, but 77 per cent of the deliveries were made there. Except for the crop years 1950, 1951, 1952, and 1958, there was little direct cost to the taxpayer.³ All crop loans and purchase

³ Costs to taxpayers include, in most years, only amounts paid to C.C.C. by other agencies

agreements were retired by producers in the years 1954 to 1956. Acquired stocks cost approximately \$91,000 in 1953, less than \$7,500 in 1957.

The program has been most consistently used in the far west (Table 33). Since the loan and purchase agreement program was inaugurated, about 58 per cent of the total support has gone to the Pacific coast and Intermountain states. Analysis of the data will show, however, that support shifts from year to year with changes in marketing, crop yields, and quality.

During the 1952-1957 crop years, 666 crop loans and 171 purchase agreements were made at an average of 30,000 pounds per loan and 50,000 pounds per purchase agreement. Loans have been made, however, on less than 3,000 pounds.⁴ Study of loans by year in the

for the honey which they take from C.C.C. delivered stocks. The total of such costs includes the total amounts of the loans on delivered honey, plus costs of transportation and packaging.

⁴ Numerous loans have been made on quantities less than this, according to Sugar Division, Commodity Stabilization Service. They estimate that 6,000 lbs. would be the most economical lower limit for a loan or purchase agreement, but other conditions than service costs may make it worthwhile to handle smaller quantities.

various districts shows that the number of loans and their average size fluctuate widely with honey crop conditions, so that it is difficult to arrive at any meaningful average loan amount. The smallest average loan size, about 20,000 lb./loan is found in the Southern and Texas Districts with the Arizona, Pacific Northwest, Plains, and Intermountain loans progressively higher in average size. There is also a wide range of loans made by states within districts, a reflection of the beekeeping operations of individual states. California, Minnesota, and Iowa, have most consistently used larger crop loans, in most years averaging in excess of 60,000 pounds per loan; Arizona has taken out the greatest number of loans. Purchase agreements were relatively unimportant until 1958, in which year they were larger than crop loans.

Industry Attitudes Toward Crop Loans

Some industry officials believe that many beekeepers do not understand that the program is intended to help in the more orderly marketing of honey, and are not using the program as extensively as they should.⁵ The evidence at hand seems to indicate that producers regard the program as insurance. It is, however, difficult to separate the insurance feature from "orderly marketing," because if prices are high enough to obviate the need for loans, the market is apparently functioning in an orderly fashion. If prices are not high enough, the program tends to insulate the market from surpluses and thus imparts a certain order.

Producers and packers often held, in interviews, that beekeepers tend to use crop loans as a last resort, in most cases taking a somewhat lower price in preference to engaging in the effort and

⁵ Other reasons for nonuse of the program: lack of acceptable on-farm storage, unacceptable quality of honey, insufficient quantity to make the inconvenience of application and payment of inspection fees worth while.

paperwork involved in obtaining a crop loan. This attitude may be the result of beekeepers' lack of experience or knowledge of the fact that there is little, if any, more red tape connected with getting a support loan than a commercial loan.

Commercial bank credit was the major source of outside working capital mentioned by a very high proportion of those beekeepers who returned questionnaires.⁶ Field interviews reveal that of late years, producers have been accepted by their local bankers as good risks. Where beekeepers have good local credit standing, commercial credit is a more flexible and immediate source of funds than a crop loan, although at a much higher interest rate.

Honey prices have been rising since the loan program was initiated, while support prices have been declining. The national season-average price of honey in 60-pound cans was 18 per cent higher in 1957 than in 1952, whereas the support price was 15 per cent lower. Analysis of loan data from 1955-1958,⁷ shows that the majority of loans, both in number and physical volume, has been on extra light amber honey in Arizona, California, Southern, and Texas districts. In all other districts, loans have been almost entirely on white or lighter grades, but they approximated only 20 per cent of the national loan total from April, 1955 to October, 1958.

Although there is evidence that government loans are occasionally resorted to for working capital, there are strong indications that their price insurance feature has had more significance for the honey industry to date.

⁶ It is not possible to determine how many of those who indicated "bank credit" actually used an A.S.C. instrument as the basis for a C.C.C.-guaranteed bank loan, since, for instance, a purchase agreement may be used to establish price insurance for a commercial loan.

⁷ Arrived at by determining average support prices of the total honey under support in each state as released in the *Honey Market News*.

Costs of the Price Support Program

The \$9.1 million cost of the honey price support program between 1950 and 1957 is not recorded as a loss to the Commodity Credit Corporation, but as costs related to the various disposal operations, like school lunches, diversion, and export subsidy. (The cost of each of these operations is included below in its description.)

East-West Support Differential

An additional question frequently arises in the far west regarding the east-west support differential. In all states west of the Plains States and Texas, the support rates are .9 cents per pound less than those of the eastern area. The differential represents the average freight cost of moving honey from a surplus production into a deficit area.

In the case of the far west, however, the differential is less than actual freight would dictate, since it is rarely possible to negotiate a freight rate as low as the differential from that area to consuming centers of the midwest or northeast.⁸ The uniform differential for the entire west, therefore, may result in more honey being delivered to the Commodity Credit Corporation in some years than might be the case if the differential were more in line with actual freight rates.

Study should be devoted to the possibility of widening the support differential to more nearly reflect the freight rate structure in effect between surplus and deficit production areas.

Forfeited Honey

It became clear during field interviews that there is widespread misunderstanding of the policies of the Commodity Credit Corporation regarding disposal in

⁸ Packers said in interviews that freight rates vary from 1.5 to 2.7 cents per pound from far western points to the midwest and northeast, depending on point of origin, destination and method of transportation.

the open market of honey which has been delivered to it. Many beekeepers are under the impression that after March 31st, packers may bid on this honey at prices lower than support rates.

The C.C.C. is, however, precluded from selling its honey at less than support prices, except under certain circumstances. The disposition of stocks of honey to various available outlets must be determined on the basis of conditions which obtain at the time. Since 1950, small quantities have been exported and marketed in regular commercial channels, although the major portion of the stocks acquired under the price support program, has been utilized under school lunch programs, "Section 32."

SECTION 32 PROGRAM

"Section 32" programs are set up under Sec. 32 of the Act of August 24, 1935 (P.L. 320, 74th Congress) for three purposes:

1. To encourage exportation of agricultural commodities.

2. To encourage domestic consumption by diverting commodities from normal channels of trade.

3. To re-establish farmers' purchasing power at a fair relationship with that of persons not living on farms. (This clause was added to the Section by an amendment on February 29, 1936, but has not been resorted to in recent years, because it would essentially duplicate the service the parity mechanism is supposed to perform.)

The description of the export subsidy program in the section on Exports, covered the first of these purposes. We are here concerned with the second purpose.

Clause 2 of Section 32 specifically mentions donations to low-income groups in our population. The donation of agricultural surpluses for relief activities, or enrichment of the nutritional patterns of low-income groups, does widen the market for agricultural commodities, but

TABLE 34
SECTION 32 DONATIONS TO SCHOOL LUNCH PROGRAM
POUNDRAGE AND COST OF DONATIONS 1950-1953

Crop year	Pounds Donated	Cost	
	000	\$000	
1950.....	6,787	1,057	} Outright purchase
1951.....	17,754	2,884	
1952.....	6,272	(est.) 1,125	} Delivered stocks
1953.....	527	91	

SOURCE: Commodity Stabilization Service and Agricultural Marketing Service.

NOTE: The average cost of these stocks exceeds the support price. The difference is represented by processing and other costs.

to an extent which is difficult to measure. This clause is also concerned with the development of new uses for commodities, and offers temporary financial support to subsidize the higher costs of introducing the commodities into those uses.

Funds for Section 32 programs originally were provided by transfer from the Treasury of 30 per cent of the duties collected on imported merchandise.⁹ It was felt by Congress that this would help equalize the aggregate incomes of farmers who purchased industrial commodities protected by tariffs, but sold much of their output in an unprotected market.

Donations under Clause 2 may be made to nonprofit schools,¹⁰ public or private welfare agencies, charitable institutions, summer camp and child care centers, and emergency and disaster relief organizations. Donations are made by the various states, which determine the eligibility of distributing agencies, store, deliver, and cooperate with recipient groups in establishing proper storage and use of donated commodities.

The only donations of surplus honey under Section 32 have been to the School Lunch Program.

⁹ In recent years direct appropriations by Congress have been used to augment Section 32 funds.

¹⁰ The Secretary of Agriculture's activities in the school lunch area under Section 32 were clarified and encouraged in the National School Lunch Act of 1946 (60 Stat. 230).

School Lunch Program Donations

It will be recalled that honey prices were supported in 1950 and 1951 through purchases by C.C.C. directly from packers who were required to pay beekeepers support prices. After 1951, stocks acquired by C.C.C. were those delivered by producers to retire loans or fulfill purchase agreements. Section 32 funds assigned to the School Lunch Program were applied to most of these stocks by the Department of Agriculture. Technically speaking, the C.C.C. is reimbursed by other programs for the loan value of its stocks. The School Lunch Program has been the recipient of about 98 per cent of all honey to which the Federal government took title in price support operations. The poundage and value of this phase of Section 32 operation is shown in Table 34.

The use of the School Lunch Program to absorb excess honey supplies not only ideally fulfills one of the purposes of Section 32, but also one of the industry's major goals—the introduction of honey to potential consumers at an early age. Industry leaders have long been concerned about the decline in per capita consumption, and have felt that since modern children are so little exposed to honey at home, their interest in it will naturally be minimal when they grow into housewife shoppers and adult consumers. School lunches do give children the opportunity to familiarize themselves

TABLE 35
HONEY DIVERSION PROGRAM: VOLUME, INCENTIVE, AND COSTS
1950-1954

Crop year	Amount of subsidy cents per lb.	Poundage diverted	Total cost
1950.....	3¾	53,410	\$ 2,000
1952.....	4½	50,679	2,281
1953.....	4	139,990	5,599
1954.....	3¾	65,755	2,473
Totals.....		309,834	\$12,353

with honey, and if (as studies mentioned elsewhere purport to show) it is also a highly nutritious food, then the donation of honey to this program can certainly be considered altogether advantageous in these areas.

On the whole, however, excess stocks do not appear with the kind of regularity which justifies any conclusion that long-run benefits will accrue to the honey industry from the School Lunch Program. This fact notwithstanding, the industry's interest in the quality of School Lunch honey is pertinent; if children are fed honey in school, it should be the kind of honey they will enjoy.

In actual practice, the Department of Agriculture is careful about the selection of disposal outlets. When stocks are delivered to C.C.C., they are concentrated within an area, and inspected for quality and flavor. When a full appraisal is made of all stocks, the U.S.D.A. determines how best to blend them, and for which programs the processed output is best suited. Generally, it is desirable to dispose of honey within the area where it is delivered to C.C.C., because freight costs are thus minimized and regional types are likely to be most acceptable to consumers in the area where they are produced. The position some industry members take, that stronger-flavored honey should be kept out of this program, may be short-sighted. Surpluses are usually preponderantly darker honeys, and the more widespread cultivation

of taste for darker flavors (an already established preference in some places), would be a step toward solving some of the marketing problems with which the industry is faced.

Diversion Programs

During the crop years of 1950, 1952, 1953, and 1954, payments were made to packers to encourage the introduction of honey into new uses.

It seems clear that substantial benefits can come only from the creation of those new uses for honey able to withstand the competition of other products. Practically, however, the industry's effort was such that no lasting new products resulted. All types of honey were acceptable under the diversion program, but in actual practice mostly table honeys darker than white were utilized in new developments. Also, the fact that so little honey went into the program attests to the industry's primary interest in devoting its efforts to traditional forms and outlets. A few ingenious uses of the diversion funds were made to support the market development for new products, but then the products themselves were apparently abandoned upon termination of the program.

Introduction of new products or uses which will stand on their own merits economically, requires study by packers of market possibilities, particularly of the potential needs of large-scale users, and requires also the risk of their own funds in production and market development.

HONEY RESEARCH

Since it is commonly recognized today that laboratory findings frequently make vital contributions to marketing procedures, a honey investigations unit has been maintained at the Eastern Regional Laboratory (now known as the Eastern Utilization Research and Development Division), in the U. S. Department of Agriculture in Philadelphia.

Under the direction of Dr. Jonathan W. White, Jr., a section in the Laboratory has been conducting a wide variety of investigations designed to determine the chemical properties of honey and its possible uses—both in foods and in other ways. The development of new products using honey in various forms is a major objective of the honey investigations unit, which is supervising an extensive study at Kansas State University in the use of honey in baked goods, under the sponsorship of the U. S. Department of Agriculture. The projects of all the laboratories working in honey research are concerned with the following:

- Experiments to determine basic chemical and physical components of honey.
- Experiments on the biological properties of honey, to determine its effects both on human and bee consumption.
- Experiments designed to develop new uses for honey and to make possible the better use of low quality honey.

Chemical and Physical Experiments

Honey is in many ways a complex substance. Its components vary widely depending on its floral sources, and such properties as color, cloudiness, and moisture content vary from lot to lot among the same floral sources. Over the years, methods of testing have been inexactly, as have the standards against which tests

have been applied. Thus, there has long been a need to develop basic data about the chemical and physical properties of honey so that dependable testing procedures could be established and further research on its possible uses engaged in.

The research to date has resulted in:

- Simple methods for detecting incipient granulation.
- Increased knowledge about the composition of honey, especially its minor sugars, acids, and enzymes. Research of this type relates to potential new uses and also can play a critical role in our export trade by helping to solve problems created by foreign food regulations.
- Production of an inexpensive kit for grading color.
- Improved laboratory testing methods for various honey constituents.

Over the years, the Eastern Laboratory has done numerous basic-data experiments on honey. As with many basic studies, their practical applications may not be immediately apparent, but the results of such research are necessary to better methods of testing, standardization and utilization. The Laboratory is currently undertaking an extensive compositional analysis of domestic honey from 47 states, which represent all the commercially important floral types and blends.

The elimination of granulation¹¹ would confer great benefits on the industry by increasing the shelf life of its product and obviating the need to teach consumers that granulated honey is not spoiled. It is hereby suggested that research designed with this end in view be undertaken.

¹¹ The experiments of Dr. S. A. Kaloyereas of Louisiana State University, using fatty acids of low molecular weight or high frequency sound waves for this purpose, have not yet been successfully duplicated by other laboratories.

Utilization Experiments

The Eastern Laboratory and other research laboratories have conducted a considerable number of studies on the possibilities for widening the market for honey. The work done at Kansas State University on the use of honey in baked goods has been extensive with regard both to the qualitative and quantitative properties of the end product, and the results have been widely published in the baking trade journals. In interviews, however, bakers have raised one important point: even given the advantages claimed in the research (improved moisture retention, color, flavor, and consistency), they are evidently not great enough to offset the added costs entailed in the substitution of honey for sucrose or commercial invert sugar. Nonetheless, the studies have substantially added to our knowledge of what results can be obtained with various grades and types of honey when its use as an ingredient is desirable.

The development of honey-fruit spreads and honey-milk combinations has not, as yet, resulted in any permanent commercial product, although the former was briefly produced commercially several years ago.

Methods for dehydrating honey without loss of color or flavor have been developed.

A study sponsored by the Laboratory to evaluate the properties of honey in pharmaceutical compounds was recently completed.

Additional research on the role of honey in confections is being considered.

With regard to new products, one gathers from interviews that the industry is reluctant to expend either funds or effort to push their commercial acceptance. But utilization research cannot yield maximum benefits unless the industry is prepared to exploit research results to the fullest.

Other Comments

Although the Eastern Regional Laboratory is the major center of honey research, packers are evidently more eager to invest money in new products developed as the result of their own marketing and laboratory investigations. Sioux Honey Association has taken some steps in this direction, and has produced a honey syrup which makes use of darker honeys. Also, additional attempts are being made to pack commercial honey with uniform chemical properties. In 1959, the California Honey Advisory Board had several products with potential merit under test.

Other independent studies in past years have established the value of honey in infant feeding for promoting calcium retention,¹² as well as the benefits to be derived by children from the invert sugars of honey.¹³ The industry is overlooking two extremely potent advertising appeals by ignoring these findings. When they were published, the country was not as food conscious as it is today, nor did such a bumper crop of children figure in its population. Both studies could well be repeated with profit, using up-dated knowledge and techniques, and possibly widening their scope to include application of their results to other age groups.

MARKETING PUBLICATIONS

Another service performed for the industry by the U. S. Department of Agriculture is the issuance of the *Honey Market News*, a bi-monthly market release which covers weather and colony conditions, price quotations at various market levels, import-export statistics, and other

¹² Drs. Schlutz, Knott and Shukers, *Effect of Honey on Calcium Retention of Infants*, Journal of the American Medical Assn., October 1941.

¹³ *Use of Honey as a Carbohydrate in Infant Feeding*, *ibid.*, Oct.-Nov. 1938.

pertinent information. Twenty-two hundred names, many of whom are packers, dealers, university research personnel, and government offices are on the mailing lists for this publication. Some states excerpt pertinent data for inclusion in their official news letters for beekeepers, but these publications also have limited circulation. In California, for instance, there are only 278 names on the mailing list for the Federal-State Market News report on honey, although there are some 3,800 beekeepers in the state. The fact that there are so few recipients of marketing news is further evidence of the low level of marketing interest among beekeepers, and the limited degree to which marketing information is circulated.

This report has held that more research on physical properties, chemistry, and new or modified uses of honey, is needed. This is also true of marketing research. The information issued in market news letters concerning both state and Federal government activities, can be put to valuable use, but needs analysis for an adequate understanding of the market. For example, a critical examination of supply estimates for various floral sources would be of great help to both producers and packers. Coordinated and summarized data on wholesaler "deals" would help all levels of the industry to assess effective wholesale prices in various markets.

APPENDIX

U. S. GRADES OF EXTRACTED HONEY

THE UNITED STATES standards for grades of extracted honey are established by the U. S. Department of Agriculture.¹ The description of these standards runs to 12 pages, and only a brief excerpt is included here in order to acquaint the reader with some of the details of the U.S.D.A. grades referred to herein.

U. S. grades are based on four factors: soluble solids (or moisture content), flavor, absence of defects, and clarity. After determination of soluble solids, the specific grade is determined by means of a scoring system. This system is not described here, but the characteristics are weighted as follows:

FACTORS	POSSIBLE POINTS
Flavor	50
Absence of Defects	40
Clarity	10
<hr/>	
Total Possible Score	100

¹ For detailed description of the U.S.D.A. grades and testing procedures, contact Agricultural Marketing Service, U.S.D.A., Washington 25, D.C.

Grades of Honey

"U. S. GRADE A" or "U. S. FANCY" is a honey which contains not less than 81.4 per cent soluble solids; possesses a good flavor for the predominant floral source or, when blended, a good flavor for the blend of floral sources; is free from defects; and is of such quality with respect to clarity as to score not less than 90 points.

"U. S. GRADE B" or "U. S. CHOICE" is a honey which contains not less than 81.4 per cent soluble solids; possesses a reasonably good flavor for the predominant floral source or, when blended, a reasonably good flavor for the blend of floral sources; is reasonably free from defects; is reasonably clear; and scores not less than 80 points.

"U. S. GRADE C" or "U. S. STANDARD" is honey for reprocessing which contains not less than 80 per cent soluble solids; possesses a fairly good flavor for the predominant floral source or, when blended, a fairly good flavor for the blend of floral sources; is fairly free from

defects; and is of such quality with respect to clarity as to score not less than 70 points.

"U. S. GRADE D" or "SUBSTANDARD" is a honey which fails to meet the requirements of "U. S. GRADE C" or "U. S. STANDARD."

DEFINITIONS OF HONEY CLASSES FOR PRICE SUPPORT PURPOSES

Price supports for honey are not based on grades, but on color classes of "table honey" and "non-table honey." As of 1959 these classes and definitions were as follows:

Classes

White and lighter table honey.

Extra light amber table honey.

Light amber table honey.

Non-table and other table honey.

Definitions

Loans are made at the applicable support rate established for the state in which the honey is stored.

"Table honey" refers to honey with the predominant flavor of not more than two sources, and preferably one, which can be readily marketed for table use in

all parts of the country. Such honey includes those with the predominant flavors of Alfalfa, Bird's-foot Trefoil, Blackberry, Brazil Brush, Catsclaw, Clover, Cotton, Fireweed, Gallberry, Huajillo, Lima Bean, Mesquite, Orange, Raspberry, Sage, Saw Palmetto, Sourwood, Star Thistle, Sweet Clover, Tupelo, Vetch, Western Wild Buckwheat, Wild Alfalfa, and similar predominantly mild-flavored honeys, or predominantly mild-flavored blends of honey, as determined by the Director, Sugar Division, CSS.

"Non-table honey" refers to honey with a predominant flavor which limits its acceptability for table use on a nationwide basis, but is considered suitable for table use in most areas in which it is produced. Such honeys include those with the predominant flavors of Aster, Avocado, Buckwheat (except Western Wild Buckwheat), Cabbage Palmetto, Dandelion, Eucalyptus, Goldenrod, Heartsease (Smartweed), Horsemint, Mangrove, Manzanita, Mint, Partridge Pea, Rattan Vine, Safflower, Salt Cedar (Tamarix Gallica), Spanish Needle, Spikeweed, Titi, Toyon (Christmas Berry), Tulip-Poplar, Wild Cherry, and similarly flavored honeys, or blends of such honeys, as determined by the Director, Sugar Division, CSS.

